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Depreciation.

By Max Teichmann, C. P. A.

Depreciation may properly be considered a branch of accounting science which, as yet, is not sufficiently appreciated. To treat all of its many features, phases, etc., would require the writing of a large volume, and then it would be found that not every question or point had been adequately and exhaustively covered. It often presents difficult problems in its proper treatment, and is subject to differing conditions, so that no hard and fast rules can be applied.

Depreciation is an impairment of the value of an asset by reason of wear and tear, accident, time, or similar causes. Furthermore, competition and improvement force frequent changes in plant value, which includes all machines, tools and appliances used in factory production, because if the general plant effectiveness of a certain factory is exceeded by that of any other factory engaged in the same line of production a condition of inferiority is established which, if not removed by improvement of plant, leads to losses and certain extinction. This assurance of future improvement, considering the present era of mechanical changes, necessitates an adequate depreciation percentage, if the present value is to be correctly represented.

Objections are sometimes raised to writing off or reserving for depreciation. There are those who desire to make as good a showing—so far as profits and dividends are concerned—as possible, but fail to consider the injustice they do to succeeding directors and stockholders. Others claim that because repairs and maintenance have been charged to revenue, the value and effectiveness of the assets are the same now as they were at the

beginning. They forget that, no matter how much has been spent for repairs, the time will surely come when the entire assets will have to be replaced, necessitating a capital expenditure and the burdening of profits made during that year with the entire loss. The serious consequences which often follow could easily have been avoided, if depreciation over the entire period of the usefulness of the assets had been properly taken care of. Still others claim that no depreciation need be considered, because the cost of similar assets has increased, and some particular asset in use is actually more valuable now than appears as purchase price on the books. In this case it must be stated that where an asset has been purchased for the purpose of producing an income, and not for the purpose of a re-sale, it comes clearly under the head of "fixed assets," and no fluctuations can have any bearing on its book value.

In the street railway field it is often claimed that no depreciation need be allowed on the fixed plant and rolling stock because, firstly, the amount involved is so large that mere repairs and renewals will average themselves; secondly, the natural growth of population will increase the earning power of the plants sufficiently to offset any deterioration in their physical condition, which can be made good by the issue of stocks or bonds. The fallacy of these contentions is clearly visible and hardly needs any further elucidation. It is obvious that proceedings of this kind must bring any legitimate enterprise down from a proper scientific accounting basis to a hazardous, speculative basis.

Sometimes revaluations are desirable to test the sufficiency of estimated provisions for depreciation, but it must be borne in mind that a revaluation can hardly fail to take into consideration fluctuation as well as depreciation, and, consequently, will affect the real result of profit and loss.

The best plan is to take the actual cost of, say, a machine, ascertain its probable life or usefulness less the break-up value (if any), and spread the cost over that ascertained period. This forms an equalized charge every year, which should be considered a working expense. Where items of different longevity or usefulness are carried on one account it is well to go into details at first, and to establish the average rate for depreciation on that account. Every year thereafter additions ought to be taken into

account and a new average rate established. It is better, however, to have the account properly subdivided, i. e., more accounts opened, in order to keep the several classes of assets of this kind separate.

There are four methods adapted to providing for depreciation, as follows:—

1. By a fixed proportion of original value.
2. By a fixed percentage of reduced balances.
3. By an annuity system.
4. By a sinking fund.

(1) The fixed proportion method distributes the depreciation by equal installments over the period. (2) The fixed percentage method throws the greater part of the depreciation on the first few years. (3) By the annuity system the gross charge in respect of depreciation is constant, but the credits to revenue, in the shape of interest, diminish from year to year as the value of the asset decreases. (4) The sinking fund method is, perhaps, the most scientifically correct.

The first method is very generally used and can be applied to most concerns. The second method, throwing the greater part of cost to the first few years when the efficiency of the asset is greatest, works to a distinct advantage in a number of cases and ways, especially where machinery is subject to sudden mechanical improvements, thereby necessitating replacements in order to keep up the plant effectiveness. The third method has its advantages, but is rarely used in this country. The fourth method is not extensively applied by manufacturing and similar concerns for a number of reasons, one of which is that the capital invested in their own business earns a far larger amount of interest than can be secured by the outside investment of a sinking fund. Besides, if depreciation is kept in the shape of a reserve account, the amount of which may be invested in outside securities, this answers practically the same purpose. Revaluation may be considered a fifth method of allowing for depreciation, but, for the reasons already given, it is not advisable to encourage its use.

The following illustration will show the result of the four methods of depreciating, assuming that, (a) Machine has been bought and set up at a total cost of $1,000; (b) Its estimated life is twelve years; (c) The break-up value, or residual value, is $100; (d) The net cost, $900, is to be apportioned.

	Result.			
End of	Method 1.	Method 2.	Method 3.	Method 4.
1st year	$75.00	$175.00	$53.35	$53.58
2d "	75.00	144.37	56.55	53.58
3d "	75.00	119.11	59.94	53.58
4th "	75.00	98.27	63.54	53.58
5th "	75.00	81.07	67.35	53.58
6th "	75.00	66.88	71.39	53.58
7th "	75.00	55.18	75.68	53.58
8th "	75.00	45.52	80.22	53.58
9th "	75.00	37.55	85.03	53.58
10th "	75.00	30.98	90.13	53.58
11th "	75.00	25.56	95.54	53.58
		(21.09)		
12th "	75.00	20.51	101.28	53.55
Compound interest 6%..				257.07
	$900.00	$900.00	$900.00	$900.00

The figures are to be obtained as follows:—

Method 1.—Ninety per cent. of cost spread over twelve years equals 7½ per cent. per year.

Method 2.—The fixed percentage on reduced balances is 17½ per cent. in this case.

Method 3.—The interest, 6 per cent., is charged to the asset, and a constant, equal sum—sufficient to reduce the asset to zero or its residual value—is written off each year. The net result is the charging off of an increasing sum to revenue, and its justification is that the depreciation installments remain in the business and thereby increase the working capital of the undertaking.

Method 4.—The sinking fund method hardly needs any further explanation, except that in this case the compound interest has been figured at 6 per cent.

Any of these methods may be employed, and, in case of the first two, instead of crediting the asset with depreciation direct, thereby reducing the amount on that particular account, it has been found advisable to leave it intact during the whole life of the asset by having a depreciation reserve account. In this case this reserve account is to be credited and revenue debited with the amount of depreciation. This reserve stands as a liability against those assets depreciated, but left intact on the books, and may either be used in the business or invested in outside securities. In the latter event this reserve would serve the purpose of a sinking fund, with the additional advantage that no fluctuation of interest in the future will affect it, because interest has not been considered at first, and the earnings on such outside investments are taken into revenue direct.

It is rarely necessary to correct inequalities which are inevitable under the mentioned methods of depreciation. However, it may be done in case, for instance, of an irregularly employed special machine, where it may be essential to have a more accurate treatment of depreciation. In that case depreciation may have to be based on the actual working hours of that machine or the number of pieces turned out. Owing to the difficulty of determining the working life or the effectiveness and productiveness of the asset under these circumstances, it is not desirable to have recourse to the time or quantity basis of apportionment, unless the ordinary methods give clearly inaccurate results.

THE JOURNAL OF ACCOUNTANCY takes pleasure in announcing an important new work by Charles E. Sprague, Ph. D., C. P. A., Professor in New York University School of Commerce, Accounts and Finance, and President of the Union Dime Savings Institution, which will appear in serial form in THE JOURNAL during 1907, beginning with the January number. It is entitled *The Philosophy of Accounts* and is based upon the author's lectures delivered before the School of Commerce in the last few years, but much amplified and elaborated. Colonel Sprague is too well-known as an accountant and writer to need any introduction to THE JOURNAL'S readers. They will find in the forthcoming series a thorough and illuminating exposition of the underlying principles of accounts.

The author does not regard the keeping of accounts merely as an art, involving a mass of technicalities, but as an important branch of mathematical science, worthy of the study of university students. Beginning at the very elements he develops the equations in which (as in all mathematical science) the facts and relations of property and proprietorship find expression. He does not, however, feel himself debarred from considering the practical side of every phase of the subject. He treats of the various working-plans and ingenious devices which have, in late years, superseded the stiff formulas of the "Italian" method, showing how they articulate with the fundamental equation and its subequations. He aims to present all sides of the subject, even methods comparatively crude and ineffective, because such methods will be encountered in actual experience, and it is necessary to have the power of comprehending them and translating them into more expressive form.

Factory Accounting as Applied to Machine Shops.

V.

By John Whitmore.

It must be borne in mind that these articles are written without any pretense of any knowledge beyond that of the accountant. If matters that have generally been regarded as outside of the province of the accountant are here treated, it is upon the principle already insisted upon, that if any true organization is to be accomplished it must be through the departments working up to each other with an intelligent appreciation of the way in which the work of each must merge into the harmonious working of them all to a single end. The work of every department is the affair of every other department, so far as each department can develop an understanding of the work of the others and facilitate it, and help to give it an increased efficiency. It is, for instance, very essential that this should be the attitude of the engineering department to the accounting department. It is an illustration of the way in which this principle has not been grasped, that engineers, realizing how many and intricate considerations must enter into the true determination of costs, and seeing no adequate sign that bookkeepers and accounting departments are equipped to deal with the matter, have claimed that "cost finding is an engineering problem." The bookkeeper, on the other hand, knows that the complete expenses of even the shop operation are disclosed only in the financial books, and knows the necessity of balanced bookkeeping wherever omissions are to be guarded against. Again it is plain that unless by "cost-finding" is meant the estimating of costs, there is a great deal of unmistakable bookkeeping work to be done.

The elements of cost so far dealt with are the simpler ones. That is to say, upon examination the method of dealing with them is plain. At scarcely any point are the figures absolutely final, free from all qualification and all contingencies, but the latter are recognizable, and, generally speaking, arise from uncertainties that are a condition of the work done. This does not mean that the cost figures arrived at are necessarily of limited value from these causes. For instance, so long as the life of a machine cannot be accurately foreseen, the best judgment concerning it is the fact to be dealt with. On the other hand fictitious cost figures might be created through machine parts being produced in

quantities larger than the existing requirements justify, and so obtaining a nominally low cost for those actually used at the expense of having later to write down the value of those which become inactive stock. The means of guarding against such a condition and the means of safeguarding the accuracy of all one's figures, and so giving them the fullest value, have so far been indicated.

The problem is somewhat changed when one comes to the accounting for small tools, and patterns, and drawings. These it is now proposed to consider.

Advantageous working of the shops and accuracy in the cost accounts are alike dependent upon the sound organization of the tool department. The shop necessity of the prompt furnishing of needed tools is the same as the necessity of the prompt furnishing of needed materials. Clearness in the tool records is necessary to the prompt furnishing of small tools to the machines, and to the accuracy of the small tool charge in the respective cost accounts, and to the economical administration of the tool department itself.

Small tools may from the accounting standpoint be divided into three classes: 1. Those that are made for the purpose of a particular product, that is not a standard product or, in other words, that are made for a special job or contract and whose further use is problematical. The production order for such tools must show distinctly the job for which they are produced and the cost account to which they are directly chargeable. 2. Tools whose use is limited to a single machine or a limited group of machines and whose repair and depreciation charges can consequently be covered in the machine rates for such machines. 3. Tools whose use is of such a general character that their repair and depreciation charges are not traceable as expenses of certain machines, but may with fidelity to actual conditions be regarded as general expenses of one, or more than one, or all of the shop departments.

For the purpose of small tool records, doubtless the card index is the most useful and convenient device. Such an index, or, more properly, card ledger, should be kept for all the tools belonging to the tool room, including all its branches. This ledger may be divided into three divisions, or into three ledgers, corresponding to the three divisions of the small tool equipment set out above.

The accounts should show the location of the tools and their inventory value, and the ledgers should be kept in agreement with the controlling tool accounts in the general ledger.

The first class of small tools mentioned, being those whose cost is properly charged into the cost of the job for which they are made, but which, while their cost has been written off, are kept for possible future use, although that may be limited to repairs and renewals or extension of the original job, may have a nominal value placed upon them. If their future use is very uncertain it would be best in setting up such values to make the corresponding credit to a reserve account, so as not at all to reverse in the profit and loss account the first treatment of the expenditure as part of the job cost. Any reliable value that there is in such tools may, of course, be credited to the job cost to which the tools were charged.

The card ledger accounts for tools of the second class should be arranged in divisions corresponding to the several departments of the shops, and each account should show the machine tool or machine tools to which the small tools represented belong, and the heading of the account might include a summary of the actual uses of the tools. Such tools being presumably stored in the departments where they are used, duplicates of the several divisions of the ledger may advantageously be created and kept in the respective departments.

The records of the third class are confined to the tool department, the tools represented being kept in the general tool room, from which they are distributed as occasion for their use arises. When these tools are out of the tool room it is customary, and necessary to their control, to have them represented by two checks, the first identifying the tool and the second bearing the number of the workman in whose charge it is. The accounts in this ledger should be very carefully classified and arranged so as to constitute the clearest possible statement of the small tool equipment represented.

The next record in relation to small tools is a card index of the standard parts machined in each department respectively, stating all the tools required for the processes in each case, and stating their location. This facilitates the prompt delivery to a machinist of all the tools proper to be used upon a given job. There is then in each department of the shops a cross index, to

the tools kept in the department and their uses, and to the parts to be machined and the tools proper to the operations.

Additional tools are produced under numbered production orders for which cost accounts are kept in a plant production cost ledger. Tool repairs and replacements may be done under numbered repair orders if the operation is large enough, and it is well to fix a limit of estimated expense or for small repairs under standing tool repair orders. The series of standing tool repair orders must correspond to the distribution of the tool expense which it is found practicable to make in the cost accounts either through machine rates or department expense accounts. Closed cost accounts for tool production and tool repairs should, after all entries are made in the general books, be filed away in the tool department, and these accounts should be kept in such detail as would enable the management of the tool department to readily obtain from them any information that in experience might be found useful and obtainable by this means.

There would then have been created a full and completelv classified record of the small tool equipment, with locations, uses, and values; and full and available records of tool production; and completely classified records of the expense of tool repairs and renewals; facilitating the shop operations and making possible accuracy in the accounting; and at the same time surely creating facilities for the management of the tool department to the ends of maintaining the necessary equipment without duplication, and watching and controlling the tool repair expense; and possibly for the more technical purposes of standardizing tools and regulating the materials used in their manufacture.

The organization and the accounting in relation to foundry patterns are simpler than the corresponding matters in relation to small tools, but there is none the less the necessity for absolutely clear records and strict methods of procedure. This is, of course, especially true where the shops are large and the product of a varied and varying character, and the active or semi-active patterns consequently large in number, and again where there is added to these conditions that of the castings being made by independent foundries. The expense direct and indirect of any mistake in furnishing patterns to the foundry is inevitably serious, and the methods used should carefully safeguard this matter.

The first necessity is a pattern ledger, and for this purpose a loose-leaf ledger is probably the most convenient device. It is

most desirable that the pattern numbers be continually maintained in a certain intelligible order; that is, that a series of consecutive numbers be assigned to each class of product of the shops, and then that the cast iron parts entering into each such class of product be classified, and each series of numbers divided up in accordance with this sub-classification. If this arrangement of numbers is to be kept undisturbed through a period of years, there must be blank numbers for future use in every subdivision. These are conditions under which the loose-leaf book is especially useful.

Castings accounts in the storehouse ledgers should be in the same order as the corresponding pattern accounts in the pattern ledgers. This arrangement of numbers greatly facilitates the work in the several departments, and if the original scheme is carefully worked out the numbers may be given so much significance that there is great likelihood of an inaccurate pattern number being recognized as inaccurate and the mistake corrected before it has caused any real trouble.

Each account in the pattern ledger should be headed with the pattern number and a general description of the pattern, and with the drawing number; and inasmuch as this is a permanent and always easily accessible record, it is well to add a complete list of the parts making up the pattern. Provision must be made for inserting the cost and for writing depreciation off from it. The balance of the page, or section of a page devoted to a single pattern, is to be used for recording its location and every change in location. This ledger will therefore tell all about a pattern, including where it is at any given time. If more than one foundry is casting for the shops it will furnish a record of the foundry or foundries which have made the castings.

Another matter of importance is that wherever a standard casting is to be varied, and there is consequently an alteration to be made in the pattern, the altered pattern shall bear a new number and a new account in the pattern ledger be opened for it, the old account being closed with a reference to the new number. When the pattern is altered back to the original form the temporary account is closed and the original account reopened.

Patterns that are made for the purposes of a special job or contract must, of course, be charged to the job cost account, as in

the case of special tools, and thereafter treated upon the same principle as such tools and by a similar method. The cost of altering a pattern for a special job and the cost of altering it back to its standard form must be charged to the job cost account.

Separate pattern accounts should be kept in the general ledger representing the value of existing standard patterns for each distinct class of machinery or apparatus manufactured, and each of these pattern accounts would be kept in agreement with the corresponding section of the pattern ledger, both being charged with the original cost and having the same depreciation written off from them from time to time. Separate pattern repair accounts should be kept corresponding to the several capital pattern accounts.

If, then, a column is provided in the cost ledger form for rough castings, there can be added to the total of this column such a percentage as will provide for the repairs and depreciation of patterns for the class of product to which the cost account relates, plus the proportion of the general expenses of the pattern department chargeable to such class of product on the basis of the relation of the castings used in it to the total castings used in the total product. The conditions in relation to castings used in any shop need to be carefully considered in order to determine whether a further classification of patterns and the expenses attaching to their use needs to be made in order to insure the fairness of the pattern expense charge in all cost accounts.

If the patterns are sent to outside foundries it is necessary that they should be systematically checked up, with lists of all the parts of which they consist, both when they are shipped out and when they are received back. The ordinary precautions taken to insure the provision of all materials in readiness for the shop operations need to be taken with especial strictness in regard to castings made by outside foundries, as the conditions of their accurate and prompt production are obviously less simple.

The accounting in relation to the work of engineers and draftsman must be based upon the strictest possible record of the actual expenditure of their time. As far as their time is expended for the purposes of specific jobs it is, of course, charged to the job cost accounts. Beyond this it needs to be classified according to the various classes of product, and according to the particular purposes of the work. Some part of it will be a purely

commercial expense, being for the purposes of prospective jobs. Some part of it will be for experimental and development work and will be a general charge against the profits of the business. Some part of it will be for the production of drawings for standard machines of each class of the product. This last it is proper to capitalize in accounts representing the value of the standard drawings for each class of the shop product. From these accounts depreciation must be regularly written off at annual rates sufficiently high to keep the drawing accounts from growing, in any case, out of proportion to the growth of the business, and, generally speaking, at rates somewhat higher than this, and these depreciation charges are general expenses of the manufacturing for the respective classes of the product. The general expenses of the engineering department are probably most justly included in the group of administration and office expenses, but emphasis may again be laid upon the necessity of strict time records, so that nothing may remain to be dealt with as general expenses that can be properly charged as a part of the cost of a specific job, or of a particular class or department of work.

It is not to be presumed that the operations of any shops will proceed along strictly routine lines. All operations have their peculiar features and are subject to various exigencies. It may be safely asserted that it is never necessary and that it is always dangerous to conduct any manufacturing operations in such a manner that the essential record cannot be made, for such operations would be simply disorderly. And with patience simple accounting methods can be developed to meet whatever special conditions exist. It is proposed to take as an illustration the necessity, which probably arises at times in all shops, of borrowing either from work in process or from finished stock some materials or some part of a machine which is so urgently needed as to justify extraordinary means of delivering it quickly. Here is something to be done which is not instructed by any shop order. The logical procedure is to issue a shop order which is, and is called, a borrowing order. Like every other series of shop orders, these are consecutively numbered and a cost account is opened for each. At the same time that the borrowing order is issued there is issued a production order to replace the part borrowed. This production order instructs that the expenditure under it be charged to the borrowing order. If the borrowing is from an

assembled machine the charges to the cost account consist of: 1. The labor, and other expense, if any, of detaching the part and getting it ready for its new use. 2. The cost of replacing the part and putting it back. If the borrowing is from unassembled parts, the borrowing order authorizes and makes a record of the borrowing, but the charges to the borrowing order cost account are only those incurred under the order to reproduce. In either case the cost account shows the actual cost of furnishing the part by means of borrowing it and replacing it.

And when all storehouse records and records of shop operations have been provided, together with the means of summarizing them for entry in the general books, there remains to be considered the important matter of the arrangement of the accounts in the general ledger. Whether beyond the monthly trial balance there is prepared each month a *pro forma* profit and loss account and balance sheet or not, it is still desirable that the ledger balances, as they follow each other in ledger and trial balance, shall be as plain and easily read a statement of the progress and condition of the business as it is possible to make them. Monthly profit and loss accounts and balance sheets are most desirable and are perfectly practicable so far as completed work goes. In the larger machine shops and engineering works there will always be a considerable number of open shop orders under which partly manufactured materials are being produced for the storehouse, and there will be job orders for equipment or installations which extend, from the beginning to the completion of them, over many months. In the latter case profits are in abeyance, and profit and loss account and balance sheet are subject to this fact. Again. there is the question of the feasibility of adjusting all open cost accounts each month in respect of all the general expenses of manufacturing. Wherever the conditions permit, and in many, and possibly in most, manufacturing businesses they do permit, the practical closing of the accounts at the end of each month there is no doubt of the value of doing it. Where many matters must, except at greater than monthly intervals, remain open, it does not mean that the situation is not to be very carefully gauged each month, but rather that it needs to be done with special care and perhaps special skill.

The arrangement of the accounts in a ledger should include the grouping of such accounts as are anywhere dealt with or to

be considered in their total, and the placing in proximity to each other of figures whose relationship to each other it is necessary to watch. All the accounts representing the cost of factory and yard space should be brought into a group, and there should immediately follow this group the account credited with the distribution of these expenses. If an inside column be provided in the trial balance where such groups of expenses can be footed it will immediately be seen whether such expenses are running more or less than the calculation concerning them. Similarly with all the expenses which it is planned to absorb into the cost accounts by means of machine rates, and with the account to which the machine rates are credited; and again with all the expenses that make up the cost of power, and with the power credit account. So far, there is a complete distribution or absorption of expenses monthly. Coming to the department and factory general expenses, the administration and office expenses, and the trading expenses, if the work of the shops is of a fairly even character and does not include jobs that are in process for lengthy and irregular periods, there will easily be established an approximate relationship between expenses incurred in each group and the same as absorbed in the cost accounts, the unabsorbed balance being in respect of work in process, and its reasonableness subject to not difficult proof. In cases where the work of the shops is not of an even character and some of the work is a long time in process, a calculation can be made in regard to the unabsorbed balances of general expenses by making the analyses necessary to determine to what parts of the bases of their distribution such general expenses have been applied and consequently what parts of them await the addition of the general expense percentages in the cost accounts. It is, for instance, not a very difficult matter to ascertain the amount of the direct labor pay-roll and the machine rates in a given department, and the credits to general manufacturing expenses in respect of that department's labor and machine rates, and from the percentage in use to calculate the further credit which would come from that department in an adjustment of the cost accounts to date. Where the use of thorough accounting methods has prepared the way, the analysis and summing up of the showing of the monthly trial balance is an excellent test of the efficiency of the head of the accounting department.

A System of Factory Cost Accounting.

By D. C. Eggleston.

The organization of manufacturing plants is designed to distribute responsibility between the managers of the executive, financial, sales, and manufacturing divisions. The responsibility of the latter division is subdivided between the heads of the output, material, labor, and clerical branches of the factory.

The first division of the output department is that issuing shop orders. These are made in manifold, and copies are sent to the departments requiring a record of all shop orders that are issued. The second division traces shop orders through the shop. Their copy of the order is used in posting the shop tracing sheet, one of which is reserved for each order issued. The progress of each order is then recorded on the sheet from coupons of destination tickets, which the shop clerks attach to the order when it is to be moved. The ticket and coupon each bear the date, order number, department sending material, and destination, as shown in Form 1.

FORM 1.

DESTINATION CARD.

TO	
ORDER NO.	
W. M. NO.—DES.	
TO APPLY ON DESTINATION CARD NO.	
QUANTITY GOOD	COUNTED BY
DEFECTIVES PAID FOR	INSPECTED BY
TOTAL DEFECTIVES	
DATE OF DELIVERY	
DEPARTMENT	

If a coupon of a destination ticket is not soon received showing that the balance has been forwarded, the shop tracing clerk assigned that order must try to have the material located. If it cannot be found, he notifies the shop order department, and another order is issued to replace the parts lost. The last division of the output department is the inspection branch, the work of which is divided according to the classes of material to be inspected. That raw material may be as wanted when required, it is necessary for the raw material inspector to pass on it before it is delivered to the storerooms. To facilitate the work of assem-

FORM 2.

STOCK SLIP

ORDER No._____

DATE_____

FOR_____ DELIVER TO_____

DESCRIPTION_____

MATERIAL	DELIVERED	RETURNED	PRICE	VALUE

bling parts, the work in process through the factory requires inspection. Only rigid methods of inspection by the process inspector can insure interchangeability of parts, which is carried as far as possible by American manufacturers. Before shipping an order the finished material inspector must put his stamp of approval on the shipping ticket, a duplicate of which is sent the shop tracing department as a notification that the order is complete. Thus the responsibility for issuing shop orders, tracing them through the shop, and inspecting them is placed upon the

output department, which is usually under the direction of the assistant shop superintendent. Lastly, a shop tracing sheet is sent to the shop cost department as their voucher for the number of deliveries on an order.

Material is such an important item that no cost system is complete unless adequate methods of ordering and storing material are adopted. A copy of the foreman's production order is made

FORM 3.

STORE NO. 1 **RECORD OF RAW MATERIAL.** STOCK NO. 810

SPECIFICATIONS *Hard Brass*

USED ON

DELIVERY WEEKS

MAXIMUM LIMIT 5,000 lbs. MINIMUM LIMIT 300 lbs.

TOTAL REQUIREMENTS

Date	Order No.	Quantity Req.	Date	Order No.	Quantity Req.	Date	Order No.	Quantity Req.	Date	Order No.	Quantity Req.

DUE ON PURCHASING ORDERS

Date	Order No.	Quantity Due
2-10-06	21,683	4,000

Date	Order No.	Quantity Rec'd
3-1-06	21,683	4,000
3-3-06	51,100	500

USED

Date	Order No.	Quantity Drawn	Date	Order No.	Quantity on Hand	Date	Quantity
					3,500	1902 1903 1904 1905	

on a stock slip (Form 2) and sent to the storeroom. Foremen draw material by presenting a requisition duly signed with their order. The storekeeper refers to his file of stock slips to see if the foreman is entitled to material. If so, he enters the amount drawn on the stock slip and forwards the requisition for material to the material order department to use in posting a record of material drawn from stock on their records. Orders on the millwright, house carpenter, and house wireman for doing work about the factory are issued on running expense orders. With this form of order no stock slip is issued, the material drawn being entered on the order itself, which is forwarded to the shop cost department monthly. Then a new set of running expense orders are issued. All clerical work connected with keeping stock records is centralized in the office under the direction of the material order department. For each kind of material carried a record card (Form 3) is reserved. Provision is made for entering the amount of material ordered, received, and drawn from stock. Amounts ordered, received, and delivered are entered from a duplicate of the purchase requisition, the record of receipts from the receiving department, and the foreman's requisition for material, respectively. Reference to Form 3 shows that 4,000 lbs. of hard brass were ordered on February 10 and received March 1. Two days later 500 lbs. were drawn from stock, leaving a balance of 3,500 lbs. When the minimum limit of 300 lbs. is reached, another order for material must be issued.

Labor is an important feature in any system of factory cost accounting. Where piece and premium work prevail, the amount chargeable to each job is easily determined. When receiving an order, the foreman draws material as explained and assigns the work by making out an assignment card (Form 4), on which he records the date, order number, and operator's name. These are filed by operators' names, and daily, when the time tickets are made out, the file is referred to for the job number on which the operator is working. Piece and premium workers require an entry of the number of parts made before forwarding them to the pay-roll department. Day workers, of course, do not. After posting the pay rolls, all time tickets are sent to the labor cost department, where they are filed behind guide cards by order number. When the job has been completed the tickets are removed, the time on each extended, and a summary made. This gives the productive labor charge on the job.

FORM 4.

ASSIGNMENT CARD GANG PIECE WORK.

STARTED

FINISHED

ORDER NO.

W. M. NO.—P. NO. OR DES.

OPERATOR NO. | NAME

OPERATION	MACH. HRS.	MACHINE CLASS	NO.

ASSIGNED BY

Material and labor are often spoken of as prime costs, and the methods of dealing with them are better understood than those of dealing with the third division, often called indirect expense. Several subsidiary ledgers are required in cost accounting, which are represented by controlling accounts in the general ledger. One ledger shows in detail the charges to the fixed expenses, power, rent, administration, tools, sundry and material divisions of the shop expense account. The main subdivisions of each account for which expenditures are likely to be made are best outlined and a number assigned to each. Thus, under the head of the rent expense division, we have depreciation, insurance, taxes, changes, and repairs of the building, and rent fixtures, sweeping, cleaning, and supplies. In addition a "sundry" division should be provided in case all items of expense are not provided for. The power, sundry, tools, administration, and material expense divisions are treated in the same way.

A duplicate of the purchase requisition is marked with the number to which the bill is to be charged when received. All bills are summarized monthly by sub-classifications in the purchase summary book. From this only the total is posted to the general ledger, the subdivisions being handled in the subsidiary cost ledgers.

It is not possible to charge all bills for expense material to the department which will ultimately use the material. Supplies, tools, and stationery are put in stock and delivered like raw material on requisitions. These requisitions are sent to the shop expense department and transfers made monthly. After all transfers are made, each division of the indirect expense account correctly represents the charges to the various classes of expense work. The fixed charges, power, rent, tool, administration, and sundry divisions of the expense account are incurred in providing and maintaining a suitable place for the operator to work in. The material expense division is incurred in connection with purchasing, receiving, inspecting, handling, and storing raw materials.

There are four methods in use for assessing the indirect expense against jobs. Where the machine equipment of a shop is not homogeneous, the machine unit system gives the best results. In this system the producing units of the same class, that is, costing about the same, consuming about the same amount of power, occupying the same floor space, and tended by the same number of operators, are grouped together. Thus the entire shop, including bench work, is divided up into producing units. Fixed charges are pro rated on the basis of the value of the various groups of producing units; power on the results of meter readings and tests; rent expense on the basis of the number of feet of floor space occupied, and administration expense on the basis of the number of productive operators. The foremen are asked to make a division of tools used between the producing units. Supplies are divided by analysis and estimate. For example, on a group of three Hartford automatic screw machines, which cost $1,382.24, and which were normally run 2,619 hours yearly, the fixed charges were $125.44, the power expense was $383.69, the rent expense was $68.08, the administration expense, when one operator tended the group, $93.80, the tool expense was $707.19, the sundry expense was $254.69. To this amount

must be added the amount of expense incurred in maintaining machinery, classed as miscellaneous, that is, used generally and not on particular jobs. In the case of the three automatic machines, for example, this amounts to $16.32. The total expense assessed against this group, $1,649.21, divided by the number of working hours, 2,619, gives $0.63 as the hourly rate for the group, or $0.21 an hour. Letters indicative of the rate per hour are stamped on plates and fixed to the machines. These are then entered on the operator's time tickets and extended in the same way as the operator's time. Thus, through the machine units, the indirect expense is distributed to the various jobs.

Any idleness of productive centers, of course, leaves some of this indirect expense undistributed, so a supplementary rate is used. This is the percentage which the unallocated expense charges bear to those distributed by the machine unit system. In figuring costs the standard cost is first found and then the supplementary rate added to give the current cost. The advantage of this method is that comparisons of costs of production are more scientific, as obviously the only fair way to compare the cost of doing a job is under conditions as similar as possible.

Though all departments are more or less closely related to the machine departments, it does not follow that the same system of finding costs can be used. For instance, the best unit for distributing indirect expense in the foundry is on the basis of the number of pounds of castings produced. Whereas, in the previous method of distributing expense, everything was chargeable to the order number, it is advisable to depart from this method in finding brass foundry costs of production. The total cost per pound of each mixture made is the aim. By this method the cost of a casting used for a job is found by extending its weight in pounds at the proper price which has been determined for that mixture of which it is made. For each mixture the foreman of the brass foundry has a card on which he records daily the weight of each metal used in making the mixture and the weight of the castings produced.

The third unit for distributing expense is the "man hour." This is principally used in special departments such as the plating, dipping, lacquering, japanning departments and laboratories. Each department is treated as a special department, the proper proportion of fixed charges, power, rent, administration, tools

and sundry expense being transferred from the general expense account to that of each special department. The total expense assessed against a department divided by the number of man hours normally worked gives the rate per hour to be added to each hour worked by the productive operator for indirect expense.

The last method, called the percentage of labor plan, is used to advantage wherever the machine equipment is homogeneous, or where every job passes through all the departments. Monthly the percentage which the expense bears to the productive labor is found for each department, or group of departments, and this percentage is added to the productive labor assessed against the jobs in figuring the costs of production.

That the systems herein outlined are used by up-to-date manufacturing companies is sufficient evidence that they are worth studying and perhaps adopting by cost system experts and shop superintendents.

The Proper Treatment of Machine Costs.—A Criticism and a Theory.

By Andrew A. Murdoch.

I have read Mr. Whitmore's articles on Machine Shop Costs with much interest, and should like to be allowed to make a few comments, and at the same time to advance a new theory.

At the outset, let me state what I consider the simple analysis of a cost system.

There are three elements of direct or specific cost, the amounts of which must first be determined, as follows:

A. Material.

B. Manual labor.

C. Machine labor.

These being ascertained, all other charges and expenses can be identified as functions of one or more of them and assessed as a "loading" accordingly, until the total expenditure from start to finish has been properly and entirely distributed. This is really all there is to it, and it does not strike one as being surprisingly difficult or complex. In fact, neither the first nor the second of these elementary costs presents any difficulty, as the exact amount of money spent is a matter of book record in each case.

While this is so, I should like to state from my experience that there are very few firms in New York to-day who make any attempt to install a system of costs that is worthy of the name in respect of the method of charging out material. The material actually used on a job forms the basic element of the cost, the very foundation of the work without which the other two elements do not come into existence, and yet we find reputable firms of accountants installing cost systems based on a fixed "bill of material" which probably never agrees with the actual facts as regards value, which cannot possibly reflect the conditions under which goods are issued and returned, and which certainly does not in any way control or minimize the waste. Mr. Whitmore is strong on this point, and rightly so. It is no sort of cost system at all that does not deal with facts where facts are obtainable and that allows excess materials drawn from the storeroom to run riot over the various departments without being duly accounted for; and a client who allows accountants to delude him

with the specious promise that their simple little "bill of material" method will save accountant's fees must be blissfully ignorant of the fact that on a proper system the saving from waste material alone would more than counterbalance the excess fees in less than a year, and continue as an increasing saving year after year.

Leaving material and manual labor as having been exhaustively treated, let us turn to the third element of direct cost. This element, called machine labor—though in a machine shop by far the most important—is not so easily determinable, for the reason that the work done by machines and tools is not directly measured or recorded. It is just around this problem of arriving at a reliable estimate of the value of such work that the first real difficulty crops out and leads into such labyrinthine elaboration. That the machine cost formulated by Mr. Whitmore is too involved to be practicable will be unhesitatingly admitted by every seeker after simplicity in accounting, and that on a closer examination it is in parts not sustainable on sound principle I shall try to prove in what follows:

The cost of manual labor may be said to be the rent for which workmen's services are obtainable, and the corresponding cost of machine labor is the rent for which we might be supposed to hire the machines. Such rent would be figured to cover:

1. Interest on value of machine.
2. Insurance and taxes.
3. Depreciation sinking fund.

In addition to these factors, which constitute the bare return to the owner on his investment, we should have to include the running expenses, as follows:

4. Power expense.
5. Operating and maintenance expense.

Mr. Whitmore insists on half a dozen other charges, in the name of "floor space," covering interest, insurance and taxes on value of land and building as well as repairs, depreciation and other expenses of maintaining the buildings; but these, in my humble opinion, are no more a part of the direct machine cost in a machine shop than they are of the direct labor cost in a factory where all the work is done by hand. Besides, even in a machine shop such charges should not be treated as being exclusively in respect of machines. The site and buildings have

presumably been acquired as much for the purpose of sheltering and accommodating the employees and storing materials, as for affording "floor space" for the machines. They must therefore be considered as indirect or overhead costs, and, as such, assessed over all three elements of direct cost as a "loading" along with other charges of a similar nature in the manner described later in this article.

The next complication that spoils the simplicity of Mr. Whitmore's scheme is "crane service," the cost of which he thinks must be distributed over the machines served. Why? When a laborer handles materials between machines or departments there is no such complication. We either charge his time direct to the job or assess it as a general labor charge over the direct manual labor. So it is with "crane service." A crane is a machine, and its time should be reported as such and either charged along with other machine time direct to the jobs or assessed as a general labor charge over the direct machine labor.

Similarly we dispose of his item No. 8, "Proportion of Superintendence which is special to a limited number of machines." We much prefer to treat all manual labor as a separate and distinct element of direct cost as explained above. Even the wages of a foreman should be distributed to the work whenever it becomes apparent that he is spending more time on any particular job than is allowable as general superintendence.

Mr. Whitmore's final stumbling block is "expense of interest, repairs and depreciation on tools whose use is confined to the machine." As the original value of the machines includes a complete outfit of such tools; interest, repairs, and depreciation have therefore already been figured. If special tools are bought for a particular job, their cost must, of course, be entirely taken up by that job, unless there is a reasonable probability of their being used again, when a proportionate balance might be carried over in a separate cost ledger account to be absorbed later. But the whole question of loose tools is one which we feel perfectly safe in relegating to the "loading" class of costs to be imposed in a general percentage as a function of machine or manual labor, according as the tools operated are machine tools or hand tools. If we must enter into the cost of every one of some thousands of loose tools used in a large machine shop for the purpose of differentiating between fractional parts of a cent in the total

cost, we need not be surprised if our clients find reason to complain of the expense of the work of installing a system based on such futile elaboration. The whole cost of upkeep of loose tools in a machine shop does not exceed 5 per cent. of the total cost, and to attempt to identify and charge out the details of such a mass of minutiæ would result in additional costs appearing in the "loading" in respect of accountancy charges probably far in excess of the cost of all the tools in the shop.

Having now arrived at the conclusion that no further complication need be added to the above five items of machine cost, I shall briefly comment on each one with special reference to Mr. Whitmore's views.

1. *Interest on Value of Machines.* This is simply the annual income that would accrue from the ascertained value at the usual rate of interest. In his lecture printed in the November number of THE JOURNAL OF ACCOUNTANCY, page 23, Mr. Whitmore says: "I think I ought to warn you that this is a method of my own, and that as far as I know it is not used except where I have used it." As a matter of fact, I introduced the idea three years ago in connection with certain factory accounts.

2. *Insurance and Taxes.* This covers the annual premium in respect of fire insurance and the taxes payable by the owner.

3. *Depreciation.* According to Mr. Whitmore, this charge must be made to decrease yearly with the diminishing value of the machine. I prefer to assume, however, that the efficiency of a machine remains constant during the entire period of its operating life; that, in fact, its operating life is really the duration of its efficiency, and that consequently the charges for interest, insurance, taxes, and depreciation remain the same as long as the machine is capable of turning out work. This is strictly in line with the hypothesis that we are simply paying rent for the use of the machines during their working life, and is further supported by the argument that the value of the work done by a machine in any two hours, even years apart, will not vary to any appreciable extent. So long as a machine is kept in good working order it will turn out practically the same value of work per hour. When it ceases to perform efficient work it is time to dispose of it and buy a new machine, and the charge should be figured on this basis. Accordingly we should fix the future efficient life of each machine and determine therefrom a percentage of the value to adopt as an annual charge for replacement.

4. Power Expense. The ascertained annual expense of power, including maintenance and depreciation of plant, will form the charge for distribution over the full capacity horse-power hours of all the machines.

5. Operating and Maintenance Expense. This is purely a charge against costs in respect of actual operation, representing the tear and wear of running, which eventually necessitates expenditure on repairs or renewals. The actual cost of repairing such tear and wear cannot, however, be immediately ascertained for each job handled, as repair work done at any particular time may be in respect of the operations of the machine for weeks previous; so we are forced to establish a fixed charge from the ascertained annual expenditure required to maintain each machine in a proper state of efficiency, including oil and waste and other running expenses.

Having established the annual charges for each machine, as above, we proceed to figure equivalent hourly rates in the following manner:

Items 1, 2, and 3 are by nature "time" charges; that is, they accrue whether the machines are operating or not. We accordingly divide the total of the three by the number of working hours in the year, say 2,700, the result being the rate per hour to be charged to the cost accounts or to idle machine expense, according as the machine is operating or idle, and credited in total to interest, insurance, taxes, and depreciation reserve accounts in their respective proportions. Item 4, as already stated, is divisible over the full capacity horse-power hours, and the result, being multiplied by the individual machine horse power, will give the required hourly rate in respect of power to be charged to costs or idle machines expense and credited to power expense reserve account. Item 5, being purely an operating charge not incurred during idle time, is therefore only assessable over operating hours. We accordingly divide the ascertained year's expenditure by the actual number of hours which the machine ran, getting as a result the hourly rate to be charged to costs in respect of repairs and credited to maintenance reserve account.

The distinction proposed by Mr. Whitmore as between machines in general use and those used for special purposes only would virtually mean establishing an individual standard of full

capacity for every machine in the shop. In my opinion, such elaboration would not only be a hair-splitting proceeding, but would undoubtedly destroy much of the usefulness of the record of idle machines for purposes of comparison. A machine shop that installs special machines without being in a position to use their full capacity wants particularly to have the idle time shown up on the same basis as other machines, so as to get a line on the loss resulting from their installation.

The three elementary direct costs being now ascertained and established on a working basis, the second step is to segregate all factory expenses according as they are functions of one or other or more of these direct costs, in order to determine the percentages by which they may be most equitably absorbed.

The following is a rough schedule of such expenses arranged according to the direct costs on which they are naturally assessable:

A. Material.
- Interest on average investment.
- Purchasing department and storeroom expense.
- *Note.*—These expenses (which include rent, taxes, insurance, repairs, and depreciation in respect of storeroom, etc.) should be taken up in the value of the material when stocked.

B. Manual Labor.
- Employer's liability insurance.
- Hand tools expense.

C. Machine Labor.
- Machine tools expense.

* *B and C.*
- Foremen, timekeepers, and factory clerks' wages.
- Land and building expense (after charging off proportions for storeroom and offices) including rent, taxes, insurance, repairs and depreciation.
- Departments' general labor and expense.

* *A* + *B* + *C* + *foregoing percentages.*
- Superintendents' department salaries.
- Factory office expense.
- Factory general expense.

We are now in possession of what is known as "factory cost," and in order to evolve therefrom the total cost of production, it only remains as a third and final step to superimpose another loading to take care of expenses of administration. As these expenses often run to as much as 50 per cent. of the cost,

* Expenses marked thus are reduced to a full capacity basis; that is, the percentage is figured over the full output, and the balance not absorbed by the actual production is charged to "Idle Capacity Expense."

and cover the cost of governing both the production and selling departments, great care must be taken to obtain a correct classification of them. In the books all such expenses should be distributed over three columns, as follows: (1) production, (2) selling, (3) general.

The third column is used only when the expense cannot possibly be identified with either of the other two headings. Then, with a completed year's figures before us, we can prorate the third over the other two, and so arrive at a fairly safe estimate of the total overhead expenses chargeable against the year's production as well as those forming a deduction from the sales. The former is the figure which enables us to determine the full capacity percentage, which it will be necessary to add to the factory cost in order to arrive at the total cost, and further than this it is not necessary for us to go. We have now arrived at a satisfactory estimate of what we may call the legitimate or full capacity cost of our finished product. We tag it accordingly, and hand it over to the sales department, on whom devolves the duty of so adjusting the selling price that sufficient margin may be left between that and the cost to provide for selling expense and profit.

The only expense not taken care of is that arising from " Idle Capacity." The loading for profit must be made ample enough to cover this, as the selling department cannot be saddled with such expense specifically. The expense caused by machinery standing idle is the result of accident or bad management, and the proper cost figure to quote to the sales department for competitive purposes is the minimum at which the factory can produce the goods while running full swing, leaving it up to the executive to see that the production department keeps it down as near that minimum as possible.

It may be of interest to show that the above rather formidable looking array of percentages may always be reduced to three, one on each element of direct cost.

Using the letters A, B, C for the direct costs, as above, p^1, p^2, p^3, etc. for straight percentages, and f^1, f^2, f^3, etc., for full capacity percentages, we get the following formula for the factory cost:

$$\begin{aligned} F\ C = {} & A+B+C \\ & +p^1B+p^2C+f^1B+f^2C \\ & +f^3(A+B+C+p^1B+p^2C+f^1B+f^2C) \\ = {} & (1+f^3)A+(1+p^1+f^1+f^3+p^1f^3+f^1f^3)B+(1+p^2+f^2+f^3+p^2f^3+f^2f^3)C \end{aligned}$$

Of course it follows that

$$\text{Total Cost} = F\ C\ (1+f^4)$$

which changes the co-efficients of A, B and C in proportion.

In this way we are able to establish a practicable plan for imposing the loadings, while it is an easy matter to resolve the resulting credits into their original factors when the time arrives for setting up the individual reserve accounts.

In conclusion, let me emphasize the increasing importance of recognizing machine labor as a basic element of cost. The tendency of the age is undoubtedly to supersede manual labor in every possible way by introducing machinery to do the work; so that while the direct pay roll becomes gradually less and less in proportion to the factory output, the expenditure on machinery keeps on growing more and more. The custom is to entirely ignore machine work as an element of direct cost, arbitrarily fixing the latter as composed only of material and manual labor and loading all machinery and power expense, including repairs and depreciation, as a percentage on the amount of manual labor only. As an evident consequence of this method, the more hand work we put on a job the more will be the loading for machinery expense, and the more actual machine work we introduce, the less will it bear of the loading; or to carry the anomaly to its legitimate limit, a job done entirely by hand would bear a full share of the machinery cost, whereas a job done exclusively on the machines would bear none.

As a concrete example, take the case of an automatic screw machine turning out small completed parts by the score every hour. Six such machines will barely occupy the time of one man, and on an ordinary cost system the product would be charged with a sixth part of his wages and loaded in proportion, whereas if the operations were entirely done by hand not only would the direct cost be more, but the loading for machinery expense would be proportionately greater, although, as a matter of fact, no machine work had been done at all.

Surely nothing more need be said to prove that the old method is incorrect and liable to produce misleading results, and to establish the principle that the work done by a machine must be measured and figured as one of the basic elements of prime cost, on the accuracy of which the whole superstructure depends.

Hotel Accounting.*

By F. W. Lafrentz, C. P. A.

The accountant who wants to do hotel work must get into the thick of it and learn the hotel business from the ground up. When you come to put in a system for a large establishment, if the men who are assigned to the duties of heads of departments are in the least fractious, and for one cause or another do not want your plan to succeed, you may be under the necessity of doing the work yourself. So, I say, a person in order to make a success of this and, I presume, of any accounting work, really must first of all study the conditions. It stands to reason that you cannot lay down a system that will fit every case. For instance, for the purpose of checking out the sales of food through the kitchen, you must know the physical lay-out of that kitchen in order to know what to do to get a line on all the things that are passing out of it.

There are two kinds of hotels now in this country, those conducted on the European plan and those on the American plan. The American plan house is, of course, a comparatively simple matter, because whoever is in charge of the restaurant end of it knows how many guests there are in the house and knows how many he must provide for, and can buy accordingly. The European plan house, that in which you pay just for what you get and nothing more, must keep in stock everything a guest may call for. So you see the two are entirely different in character. Very often houses run both plans, the American and the European, and, of course, you must fit a system to that condition. It is very difficult at times for a hotel to keep track of its guests when run on the two plans. I have seen places, where they make the division by having colored waiters for the American plan and white for the European plan guests. And there lay the distinction as far as the two kitchens were concerned.

Recollect that the hotel business is one of infinite detail. If a check signed by a guest is lost you have trouble. It is a good deal like a bank check. You can only get the money when you produce the article. On the other hand, waiters in big hotels very often manage to obtain checks on the outside, checks that do not belong and are not dealt out by the comptroller of the hotel,

* An address delivered before the students of the New York University School of Commerce, Accounts and Finance.

and if they do that they may swindle the hotel out of a lot of money before they are found out.

The main difficulty, of course, is in the sales end, the purchase end being more readily taken care of. If you are not careful the receiving clerk will be placed under the charge of the steward, which is wrong. The receiving clerk should be directly responsible to the main office. If your order system is a proper one, and any order system will do so long as you have a record, you will have very little trouble if you insist that no goods shall be received by the receiving clerk without the bill accompanying the goods. I do not mean that you should make that rule hard and fast, because there may be times when you want the goods, bill or no bill.

The receiving clerk keeps a book called the "Receiving Clerk's Book," in which he puts down the name of the firm or corporation from whom the purchase has been made, and the amount of the invoice. When there is no bill with the goods he enters the goods in detail, so that when the bill does come in he may check it with his receiving book. Where the plant is very large, there are separate receiving clerks for the merchandise which is used in the kitchen and for the cigars and wines, because one man is unable to attend to both. At the end of the day the receiving clerk foots up his receiving book and makes a statement of the goods received, so far as totals are concerned. He attaches to that statement all of the invoices with his stamp on each, which means that the goods have been received and put into the storeroom, and gets the purchasing agent's initials as to price. All these goods are treated as though they had been put into a store, so that when the statement goes up to the head office, to the purchase journal clerk, he makes his entries from the bills and produces a statement of totals which is handed to the head bookkeeper.

On this statement you will find the headings of the purchase journal. In other words, he makes a distribution of his bills on his purchase journal, which is a columnar journal, ruled according to what you want to show. There must be agreement between the storeroom and purchase journal statements. At the end of the month we get a total from the receiving clerk that must agree with the purchase journal clerk's record, so far as the purchase of stores is concerned.

By a similar process to that which we employ in getting the goods into the storeroom, we get them out, that is, by means of a statement. At the end of the day we know the receipts from every department. We also know the cost of production, because everything that has been used in the kitchen or elsewhere has been reported from their various sources. All these records are gathered up and sent daily to the head bookkeeper, who has the means of entering upon his books what is necessary to produce the profit and loss and assets and liabilities statements.

We have also a system of checks by means of the bills of purchases by guests. The bills are usually made by a bank note company, so that they cannot be duplicated without great difficulty, and are numerically arranged. They bear the waiter's number and are handed out to the waiters and to those who are in charge of sales of all kinds, just as money is handed out. For that purpose we have a comptroller, meaning, in this case, merely a man to control the sales. He sees to it that all the checks that are received by him are safely stored until wanted, that they are given out to those entitled to them, and that a record of the numbers is made, so that if a check is missing, he can put his finger on the man who should account for it. In addition we have checkers sitting at the entrance to the various places out of which these sales are made. As a waiter passes with a tray full of articles, he must first of all present himself to one of these checkers and show what his check calls for. The checker puts under that waiter's number the amount of the article he is taking out and also stamps the same amount opposite that item on the waiter's check. The large checkers' sheets are taken by the comptroller the next day and every check is compared with that sheet to see that they correspond, one with the other. If there are any missing items or checks, the waiter has to pay that amount or produce the check.

Each department has a cashier. If a guest pays for his purchase the cashier takes the amount and enters it in a counter book. If it is cash it is entered on the one side and a division made of the sale as to what it covers, food, wine, cigars, and so on. If it is a charge sale, it is entered on the other side and the purchaser's name put along side of it. Two of these books are used alternately, one one day and another the next. Every other day the comptroller gets this book, foots it up and balances with

the checks which are independently controlled by adding machines and otherwise. Then the business by departments, all of which is reported immediately on the morning following, is segregated on the basis of the kind of goods that have been sold; so that here you have an uncontrolled report in the first instance of the total amounts received by the departments and the charges by departments. That report goes to the treasurer or head cashier and each department cashier, having a balance at the beginning of the day, must turn in the amount of money taken in through the day. The treasurer knows how much has been received by each cashier according to the comptroller's report and should enter on his books the amounts called for by the comptroller, not the actual amounts turned in by the cashiers. This is contrary, to be sure, to the general rule of accounting that the actual cash received rather than the comptroller's statement should be entered. In this case, however, it would throw everything upside down, if we followed the usual rule, because the comptroller analyzes the sales and it would be necessary to make a deduction here or there in order to square the cash, if it were over or short. What we do is to create an "over and short account" upon the ledger, in which we put down each day, item for item, the amount over or short by the several people in charge of cash. If a person is always over or always short, he is not wanted. However, you must insist upon having the truth if you can get it. I do not mean to say that you always can get it.

The front office cashiers are treated in like manner. They have to report overs and shorts. There used to be a time when the proprietor said, if you are over I want the money and if you are short I want the money. We maintain that such a rule produces dishonesty. If he is over, let him turn it over. If he is short and it is an honest shortage, let it offset the "over" account. It stands to reason that a man working on a salary cannot make up large losses, if honestly made, and he will find a way of getting them back again. If he cannot get it out of the house he will get it out of the customer by making short change in changing bills.

The comptroller keeps a very large sheet, though it is not larger than it needs to be if you have a number of departments, in which he enters daily, first of all the amount of departments and then the segregated accounts of sales. On each side of the sheet are the days numbered from 1 to 31; at the top is simply

the date, month and year, so that this one page will run a month. It is designed to take in the previous month's totals and to give a grand total for the period and therefore runs a year at a time. It is taken by the auditors and from it the verification of the general ledger is made.

One of the most important parts of the hotel is the room clerk division. The room clerk should know at any time what rooms are occupied, what rooms will be vacated during the day and what rooms have been reserved. At the end of the day a night shift is put on and a night auditor with them. The night auditor goes over the room rack and makes up the room record, which is arranged numerically and gives the total capacity of the house. Opposite each room number, where the room is occupied, is placed the price at which it has been let; so that he can, at the end of the day, make up a statement for the house for that day. That statement comes to the head bookkeeper. It comes to the comptroller and along with it he receives a report of the housekeeper, also numerically arranged and by floors, showing what rooms are occupied. That method prevents sleepers from crawling in. Very often guests leave and, if the management is not watchful, the rooms are allowed to be left vacant because they are thought to be occupied.

The carriage, laundry, newspaper, theater ticket business, and everything else of the kind is run on the same general plan. People very often buy such things as newspapers and have them charged up, which makes a great deal of bookkeeping necessary.

We have seen, therefore, that from the comptroller we obtain a statement of all income for the general books. The head bookkeeper knows the total income every day just as the comptroller knows it. He gets a statement from the treasurer or cashier of the receipts and the disbursements, similar to the one he gets from the comptroller. The head bookkeeper, you see, is a man to be looked up to. He knows what charges have gone through against accounts of guests, and, as a result, knows the amount to be charged against all accounts receivable. He knows from the front office what payments have been made by guests who have charge accounts. He has the verification from the comptroller. Deducting one from the other, together with the allowances if any, he knows the balance of accounts receivable, which you should find on the guest ledger.

I do not mean to say that you can make this balance come into agreement to a penny in a large business, because a hotel is never at rest. It is unlike any other business in that respect. Any other business that we know anything about, except a railroad, closes down once in a while to find where it stands, but a hotel must keep going. There is always something overlapping. A man comes in at one o'clock in the morning and wants something to eat. If you should take off a balance before or after that, it would be inaccurate. As a rule, the guest ledger is a little closer to the situation than the comptroller's record.

The bookkeeper behind the counter has to enter on his guest ledger every item that is chargeable to a guest. When the guest wants to depart he has to have a bill ready. If a guest wants his vouchers, they have to be found in the comptroller's office where they are kept. We have provided in one instance, and with great success, a billing machine. As fast as the charge checks come through the bookkeeper takes them, enters them on his ledger and makes the bill. In other words, he keeps his bills right up to date, as mercantile houses very often do now, so that the bill is ready for the guest whenever he comes for it. It is a good thing to have the bills ready when the guest is ready to go, because it prevents the accumulation of large accounts receivable on the books. If a bill is not made out when a guest wishes to leave, the transient ledger is relieved of that item and it is put into another ledger. Transient items are entered, where the accounts are alive and the guest has not left the place.

There are many devices covering the entrance of employees into their place of employment. There is one means of keeping a record in the main office, which will go with any of these devices. It is always necessary, of course, to have some one charged with the duty of making the contract of employment and of keeping track of the men in and out. Cards are provided, on the back of which is the contract of employment, which is signed by the employee. The card gives the department in which he is to be employed, his number, locker number, occupation, wages he is to receive, date on which he was employed and name of the person authorized to hire. Attached to the card is a stub, on the back of which is the name of the employee, his department and number and his signature for identification. This card is sent to the paymaster in the head office. He fills out the face of the card,

giving the employee's name, date of employment and salary. At the end of the month, or sooner if the man or woman is dismissed or retires from employment, the absence of the person is noted on this card; that is again apparently getting the record the wrong way, though, as a matter of fact, it is not. So far as the head office knows, this man is in the employ of the hotel though he may have left two or three days before; but when he leaves the date of his leaving is marked on the stub, which he must produce in order to get his balance. His time is made up from the time books of the department in which are noted days of absence, then the absent days and any charges for uniforms or breakages are deducted and a balance struck. When he receives the balance, he receipts for it on the card. Of course at the end of the month or on such days as regular payments are made pay envelopes are made up and the man can, by producing his credentials, receive his money. All of this is grouped on statements giving the total wages, deductions for uniforms, breakages, absence and cash interim payments, and showing balance to be finally paid on the pay day.

It is better to have accounts with all tradesmen than to employ what is known as the voucher system. We want to know how much we buy from each tradesman, what amount of money we pay, what discounts we get off, and the voucher system does not tell. In addition, we have a voucher register so that we record the vouchers, crediting the voucher account on our general ledger. The cashier merely reports the number of vouchers paid, but does not classify his payments.

We have seen how all the departments must report to the head bookkeeper. He is supposed to keep nothing but the general ledger. That general ledger is arranged with about twenty or twenty-five different rulings, making, as it were, twenty-five separate ledgers all bound in one cover. It is so ruled that he can put down daily under the headings what has transpired in each division, and is so arranged that it may be added up and balanced daily, the balance being thrown out into a balance column. The head bookkeeper produces a statement, the first two columns of which show the changes in the general ledger accounts during the day. It is a rule to enter all cash transactions in red figures, book entries in black. The next two columns are profit and loss for the period, and the next two columns show the assets

and liabilities. The statement is so arranged as to have the assets and liabilities at the top of the sheet and the profit and loss account below for convenience.

The question may arise in your minds as to whether this is an expensive system or not. It is the most economical to be found. It necessitates keeping every department and every book up to date. If there is a laggard, he is found out at once. If there is an error, it is found out at once, not thirty days or six months later when the information is of no use. Even for the largest houses three or four men will do all the work, including the treasurer's business in the main office. It is the system, the inevitable thing to be done every day, that makes it a success and easy to run, easy to look after; and of course, it is a pleasure for the proprietor to know how he stands all the time. With a system of this kind, of course, you must take stock periodically to prove the storeroom accounts, but you have a check on that stock if you have kept your accounts properly. Out of stocks running up to nearly $100,000 the rule is to come within $200 of the amount at stock taking; and that stock is taken not only by the parties who have control of it, but by auditors who have nothing to do with the running of the place.

I have not gone into the question of returns of merchandise because you all understand that the entries being the reverse of the receipts of goods, the record is the same as with receipts, except that it is treated on the other side of the account. In regard to the question of allowance to guests, which is sometimes important, I may add that allowances of every kind must be made by the management. A record of the item is made in an allowance book which is initialed by the manager or proprietor.

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EDITORIAL.

The American Association and Business Education.

As THE JOURNAL pointed out last month, the American Association of Public Accountants is undertaking through its committees to accomplish much good work for the public. Here we find the strongest evidence that the Association has its roots, not in selfishness, but in public spirit. Some of the busiest men in this country, men whose business often consumes their evenings and not infrequently spoils their Sundays, have shown praiseworthy willingness to serve on the Association's committees, and to shoulder responsibilities which cost them a great deal of time and money.

One of the most important of these committees is that on education. It is important because of the opportunity it has to determine the quality and character of the education which the accountant of the future shall receive. Commercial education at the present time, not only in the United States, but all over the world, is in an experimental stage. There is a great dearth of properly qualified teachers, and among professional educators there is much ignorance as to the real educational needs of the business man. Furthermore, among practical business men there is very little keen or intelligent interest in the subject. There

are several score business organizations in this country, yet THE JOURNAL does not know of one which has attempted to make any impression on our school system. It seems to be taken for granted that the business man as such has no particular interest in pedagogics. No one denies that as a citizen he has a right to an opinion with regard to the school policy in the community in which he lives. There is, indeed, a common notion that the schools of the country have attained the ideal when they turn out good citizens. In our opinion this view of education is a mistaken one. Our schools will not do their full duty until they aim to produce useful as well as good citizens, and since a large proportion of American citizens are engaged in business, it is the duty of our schools to give young men a training that will help make them successful business men as well as good and loyal citizens.

THE JOURNAL suggests therefore that the committee on education of the American Association at once set about the performance of a difficult but very important task. During the coming year it should examine and report on the existing facilities for acquiring the kind of education needed by young men entering business, giving especial attention to the methods and curricula of those schools which profess to train men for the profession of public accountancy. This is a task for which a body of accountants is probably better fitted by experience than any other body of business men. The accountant necessarily knows a great deal about all kinds of business, for he is brought into close contact with all of them in his capacity as organizer and adviser. Better than any one else he knows the problems which confront business men of all kinds, and if he will take up the subject seriously, he should be able to determine whether a system of commercial education is really adapted to serve its purpose. THE JOURNAL suggests that the committee begin its work with the secondary schools. Over 95 per cent. of the young men who apply for positions in business offices are without even a high school training. Most of them have been obliged to leave the public schools at the ages of fourteen and fifteen, and have studied little more than reading and writing and arithmetic.

The success of the so-called business college in this country is evidence of a strong demand for elementary training in business methods. Until within a few years these private schools

were the only institutions in the country where a boy could learn anything about bookkeeping and business practice. Of late years many high schools have established commercial departments, and in a few cities high schools of commerce have been created. Are these schools really giving their pupils the kind of instruction that is best suited to their needs? Are they doing thorough work? Are they doing unnecessary work? Are they neglecting to teach certain subjects which ought to be taught? These questions are important and they have never been considered by business men. Let the committee of the American Association of Public Accountants make an investigation and report its findings at the next annual meeting.

Many of the managers of private commercial schools or business colleges are anxious to raise the standard and so increase the value of their diplomas. The task is a difficult one, for these schools are business undertakings and are competing eagerly for students. It is difficult, therefore, to bring them into harmony, or to establish a high standard to which all will adhere. At the present time the fact that a boy is a graduate of a business college means very little. It can be taken for granted that he has a smattering of bookkeeping and that he knows the difference between a check and a promissory note, but one cannot be at all sure about his spelling, his penmanship or his English. The training is too often superficial and wholly inadequate. If the American Association of Public Accountants will take hold of this subject and put the stamp of its approval on a scheme of study for these private commercial schools the result will undoubtedly be beneficial.

Publicity for the Accounting Profession.

Hon. William Harman Black threw out a good suggestion at the annual dinner of the American Association when he advocated the establishment of a publicity and promotion bureau, whose duty it should be to obtain more recognition from the press of the importance and interest to the public of accounting work. The appointment of a Special Committee on Press and Publicity served to emphasize the general approval of Mr. Black's suggestion. The readers of THE JOURNAL will, no doubt, follow attentively the work of this Committee.

It is a difficult and delicate, but by no means impossible, task to arouse public interest without departing from the accepted standards of professional dignity. The difficulties are closely similar to those which confront the administrative offices of leading universities. Certain universities have attempted to keep their names before the public by methods that are reminiscent of the circus press-agent. They have encouraged their professors to announce sensational discoveries and theories and have sent out glowing stories that had very slight foundations in fact; and by such means they have obtained a great quantity of cheap, but scarcely desirable, advertising. The older institutions do not favor this style of publicity. There is not one of all the universities, however, so dignified and conservative that it does not welcome the publication of books and articles by its professors, and does not try to make its public lectures and exercises so timely and interesting that the newspapers will give them space. This is the kind of advertising that pays; it attracts every one's attention, without offending any one's taste.

There is an idea here worth noting by public accountants. Recognition by intelligent people, not cheap notoriety, is what the profession of accountancy needs. The best way to get it is to follow the conservative university lead. Accountants ought to make it a point to speak out on timely questions. The American Association, through its special committees, has already made its influence felt in the insurance agitation, in the reform of governmental business methods and in the revision of railroad accounts under the new Interstate Commerce Law. The policy is good. It ought to be followed by the State Societies also, and even by individual accountants throughout the country, each one of whom may find opportunities to render service gratis to his local community and at the same time to win recognition for the accounting profession. It is a mistake for accountants to narrow themselves too closely to their own technical pursuits, while the application of their science to business and to public affairs remains in the minds of most people so vague and misunderstood.

Just at present the best vehicle for the expression of accountants' views on matters of general interest is the magazine, rather than the newspaper, for the reason that the magazine appeals to a more discriminating public. THE JOURNAL OF ACCOUNTANCY holds its columns open to every variety of intelli-

gent opinion, especially on timely questions, and through THE JOURNAL the editorial offices of important periodicals may be reached. In addition the more popular business magazines are not to be despised as mediums of publicity. THE JOURNAL welcomes the increasing attention which they are giving to elementary accounting, as distinguished from bookkeeping, problems. Even the literary magazines are devoting more and more space to questions of business administration and control. The man who can make the accountant's method of approaching such questions intelligible and interesting to the average magazine reader will perform a genuine service to the profession of accountancy.

Doctoring the Currency.

Probably no set of men are better equipped for an understanding of the currency than are public accountants. It is commonly assumed that expert opinion upon this subject can be found among bankers only, for there is a common belief that bankers are more concerned about the money question than anybody else. As a matter of fact the average banker has very little occasion to study the money question. He is a lender of other people's capital and not a dealer in money. The currency, however, has practically nothing to do with capital. It is the medium of exchange, and that is something in which all people are vitally interested.

The agitation for the improvement of our currency system has been given a great impetus by the reports recently made by the Special Currency Committee of the New York Chamber of Commerce and the Commission representing the American Bankers' Association. THE JOURNAL believes it to be the duty of accountants to take an active part in this agitation, for they are well equipped by their training to get a mastery of the question.

The currency question really relates to the use which a bank shall be permitted to make of its power to incur liabilities. Under the law in this country banks have the right to create deposit liabilities to any extent. The only requirement is that they shall carry a certain money reserve and that they shall not default on their obligations. With regard to the issue of note liabilities, however, the national banks of the United States are subject to

several artificial restrictions. Both these forms of bank liability, namely, the deposit and the note, yield a medium of exchange that is very useful in the community. The bank deposit yields the check, which is of great service as a medium of exchange among business men. The bank note, being the bank's liability to bearer, has such a general acceptability that it passes current as money itself, and is particularly useful among people who do not keep bank accounts or write checks.

It is evident that if banks were permitted to increase both these forms of liability with perfect freedom, the country would never suffer from a lack of currency. Just as increasing business in cities results in a larger volume of bank checks and bigger totals at the clearing houses, so would any growth of business in the country districts result in a greater volume of bank notes. Then business in no part of the country would be hampered merely because of scarcity of the circulating medium. On the other hand, if there were a general decline of business activity, then the volume of checks and of notes would both correspondingly decrease, so that the country would have no surplus of either.

Such would be the ideal condition, but under the present National Bank Act it cannot be attained. The requirement that banks must purchase government bonds before they issue bank notes introduces an investment consideration of such importance that our banks will not issue notes merely to satisfy a temporary increase in the demand for such a medium. Consequently in the fall, when the harvesting of our crops calls for increased sums of cash in the country districts, the banks meet this need, not by a larger issue of notes, but by the withdrawal of actual money from the reserves. Hence they are forced to contract their loans and all borrowers suffer, the rate of interest always being advanced.

Is this situation necessary? Is it not possible to devise a system whereby our banks may be safely allowed to issue notes with more freedom? The volume of checks and drafts—often called deposit currency—responds most sensitively to the demands of trade, increasing when trade is active and decreasing when trade is dull. Is it not possible to impart a similar elasticity to the volume of bank notes? That, in substance, is the currency question.

The recommendations contained in the Report of the Chamber of Commerce Committee, and approved by the Chamber, should be carefully studied by every public accountant. The Committee recommends that either a central bank of issue be created, the government having control of its management, or that national banks whose bond-secured circulation amounts to at least 50 per cent. of their capital, be permitted to issue a certain amount of additional notes without further deposit of bonds, these additional notes being subject to a graduated or increasing tax. Recognizing the fact that the usefulness of bank checks is due largely to their constant and certain redemption at clearing houses, the Committee recommends that numerous clearing houses or redemption agencies be established for bank notes. This work might, of course, be done by the banks themselves, but possibly the Committee's recommendation that it be done through the Government Sub-Treasuries, is the more practicable. The expense, of course, would have to be borne by the banks.

The recommendations of the Chamber of Commerce Committee, if carried into effect, would result in a limited issue of what is known as asset currency, namely, bank notes secured by the general assets of the bank rather than by a special deposit of collateral. Many people look with suspicion upon notes of this character, and are prone to stigmatize them as "wild cat" currency. It should be borne in mind, however, that bank notes of this sort are issued in other countries, and that they are proving just as good and safe as national bank notes, while also possessing that quality of elasticity which the national bank note utterly lacks.

Reviews of Corporation Reports.

Conducted by THOMAS WARNER MITCHELL.

Corporate control is of three kinds, viz.: (1) the control exercised by the stockholder, (2) the control exercised by the board, (3) the control exercised by the officer. The purpose of accounts and reports is to make control intelligent. Do the reports rendered to stockholders contain such information as will enable them to exercise intelligent judgment with respect to the fidelity, efficiency and economy of corporate trustees and agents? This is the viewpoint of criticism and analysis appearing in this department of THE JOURNAL.

The Reports o the Chicago, Rock Island and Pacific Railway Company.

The reports of this company have been chosen for review for two reasons. In many respects the report for the year ending June 30, 1906, is a model in contents and form of presentation; it contains nearly all the information which a stockholder will need and desire, and presents that information in the form required, thus saving the investigator a great deal of numerical manipulation. These reports are of interest, further, because of the information they may yield as to the character of the management, especially as to maintenance of the road and equipment, since control of the company was taken over by the present interests in 1902 and the dividends were largely increased in order that the controlling company might pay interest and dividends on its several issues of collateral trust bonds and stocks.

The report for 1906 contains a comparative income statement for the years 1905 and 1906. From the reports of several years the following comparative income statement is made up. The statement for 1903 is for fifteen months, the end of the fiscal year having been changed from March 31st to June 30th; the statements for 1901 and 1902 are for the years ending March 31st; those for 1904-1906 inclusive are for the years ending June 30th.

The large increases in absolute amount of gross earnings and operating expenses do not tell much because they are accompanied by similar increases in the mileage operated which largely represent the acquisition of the Burlington, Cedar Rapids and Northern, the Choctaw, Oklahoma and Gulf, and other lines as well as the construction and leasing of new mileage in the southern Mississippi and plain states. More information can be obtained by computing the average gross earnings and operating expenses per mile of road operated; but this can be done to better advantage after the maintenance allowances have been investigated. Other notable features are: the rapid increase in fixed charges, which have more than doubled since 1901; the large proportion which "Other Income" bears to "Net Income," and its importance as a source from which to pay dividends; and the narrow margin of income above fixed charges and dividend requirements in 1904 and 1905. These will be dealt with later.

STATEMENT OF EARNINGS AND EXPENSES FROM 1901 TO 1906 INCLUSIVE.

	1901	1902	1903	1904	1905	1906
Gross Earnings	$25,364,695	$28,385,846	$42,752,556	$44,969,491	$44,051,509	$51,237,858
Operating Expenses	16,224,064	17,333,104	26,890,980	31,774,893	31,058,209	35,067,059
Net Earnings	9,140,631	11,052,742	15,861,576	13,194,598	12,993,300	16,170,799
Other Income	701,379	948,849	2,006,966	1,333,834	1,526,172	1,015,837
Gross Income	9,842,010	12,001,591	17,868,542	14,528,432	14,519,472	17,186,636
Fixed Charges	5,144,993	4,780,649	8,672,723	8,500,234	9,786,363	10,400,804
Net Income	4,697,017	7,220,942	9,195,819	6,028,198	4,733,109	6,785,832
Dividends	1,599,692	2,247,901	5,305,557	5,985,060	4,676,622	4,677,553
Surplus	3,097,325	4,973,041	3,890,262	43,138	56,487	2,108,279*
Average miles operated	4,842.56	5,005.8	6,978.43	7,205.14	7,231.91	7,218.07

*All appropriated for "special improvement and equipment fund."

These reports are of great interest to the holders of the Chicago, Rock Island and Pacific Railroad Company's collateral trust bonds which were issued in 1902 in payment for the Chicago, Rock Island and Pacific Railway Company's stock (the company whose reports are now being considered). These bondholders were the Railway Company's stockholders and are still potentially its stockholders. Having seen the net financial result, they are next interested in ascertaining its accuracy. They are especially interested in the expenditures for maintenance. If these are too small, then the road is suffering and their security is being undermined in the Railroad Company's endeavors to pay interest not only on the above named bonds but on the bonds issued in the purchase of the 'Frisco stock as well. If the maintenance allowances have been adequate, then these bondholders have less grounds to fear the present management.

The following data will furnish us with some idea as to the maintenance policy of the company.

	1901	1902	1903	1904	1905	1906
Maintenance of Way and Structure per mile of road operated	$949	$928	$979	$950	$805	$1,012
Repairs of roadway per mile	397	397	573	574	452	526
Renewals of rails " "	94	68	74	18	16	52
Miles of rails relaid	259	220		79.9	86.9	503.95
Renewals of ties per mile	$138	$141	$111	$126	$123	$160
Ties relaid per mile	238	243		216	204	253
Maintenance of Equipment per mile	$616	$581	$598	$711	$797	$923
Maintenance of Locomotives per mile run	$.0433	$.049	$.049	$.062	$.085	$.087
Maintenance of Passenger Cars per mile run	.010	.0102	.0063	.0068	.0083	.0083
Maintenance of Freight cars per mile run	.0069	.0046	.0039	.0048	.0056	.0059

Most of the data is not given in just this form, but a little numerical manipulation will yield it. Most of the information is stated in the form of total values for the year; these divided by the average miles operated during the year will yield the average amounts stated in the table. The miles of rails relaid were stated in the reports for the years 1905 and 1906; the reports for other years merely state the tons of new rails relaid; the latter are reduced to miles by dividing by 125.71, the number of tons of 80-lb. rail necessary to lay a mile of single track. The average maintenance of locomotives per mile run is obtained by dividing the total allowance by the total number of miles run by locomotives during the year, both of which are stated in the report. Maintenance of passenger and freight cars per mile run is obtained similarly by using total passenger car mileage and freight car mileage as divisors.

An examination of this table reveals the following facts. With the exception of the year 1905, the total allowances per mile of road for maintenance of way and structures since 1902, have been as great as,

or even greater than the allowances for the years 1901 and 1902, the latter being the date of the change in management. All of these, except the figure for 1906 are under the 1000-dollar limit; in this, however, the Rock Island has the companionship of the Northwestern and the St. Paul, two roads somewhat similarly situated. The large increase in this item for 1906 over 1905, is accounted for in part by the heavy expense incurred in the substitution of 85-lb. rail for lighter rails, and in the greater renewals of ties and repairs to roadway. The repairs to roadway per mile since 1902 have been much greater than before. The renewals of rails and ties, however, have been much less. In 1906, 503.95 miles of new steel rails, 485 miles of which were 85-lb.rail, were laid down to replace old rails; it is to be noted, however, that 60 per cent. of the cost of this was charged to Capital through the "Additions and Improvements" account, and not to maintenance. If the cost of the entire 503.95 miles were included in maintenance charges, however, the average for the last three years would be only 223.58 miles per year or about one thirty-second part of the entire average mileage operated. This proportion seems wholly inadequate; other strong roads are allowing only ten to fifteen years as the average life of a steel rail. During the same time the company has been replacing an average of about 224 ties per mile of road, whereas comparative statistics indicate that from 350 to 400 ties ought to be replaced.

The allowances for maintenance of way and structures, then, do not seem quite adequate. The equipment, apparently, has been kept in much better condition since the financial readjustment of 1902 than before. Probably 6 cents per mile run would be a sufficient allowance to keep locomotives in good condition, while the allowances for the last two years have exceeded that figure by over 40 per cent. The allowance for maintenance of passenger cars seems small, most roads of similar situation allow about 9 mills per mile run for this item. Between 5 and 6 mills per mile run is the proper allowance for repairs and renewals of freight cars, so that the average allowance for this purpose during the last three years has probably been sufficient to keep this part of the equipment in good condition.

The relatively great importance of the item of "Other Income" has been pointed out already. The company's report contains a detailed statement of the securities which it owns and which are included in various items in the balance sheet. It would be well if the securities from which the "Other Income" is derived were indicated as well; this would enable the shareholder to satisfy himself that the railway mileage represented by these securities was not included in the mileage for which the income statements were made up, and, therefore, that the "Other Income" was not already taken account of in "Net Earnings." The total par value of securities owned but not represented in "Cost of Property and Franchises" was, for the year 1906, $38,757,094.29, with a book value of $18,697,510.72. All but about $6,750,000 (face value) of these consisted of the stocks of depot, terminal, transfer, stock yards, elevator, coal mining companies, and a large block of the Chicago and

Alton Railway Co. and of the Rock Island Company. It would require an average of nearly three per cent. on the par value of all these securities to yield the $1,015,837 of "Other Income" for the year 1906.

In the balance sheet there is a very large item of $20,239,770 for "Advances for Construction and Equipment," which has increased nearly $461,000 during the year. The report states that these advances were made mostly to the St. Louis, Kansas City and Colorado R. R., whose line from St. Louis to Kansas City is under construction. The exact relationship between the Rock Island and this company is not stated, nor does the report furnish any statistics of the St. L., K. C. & Col. R. R., not even including this line in its table of "lines under construction."

The current liabilities of about $7,140,000 are exceeded by the cash on hand; the "deferred liabilities" of about $5,140,000, representing interest, taxes, rentals, and reserves accruing for various purposes, are amply provided for in the $16,450,000 of current assets which the company owns in addition to the cash on hand.

The balance sheet is not comparative, but it is accompanied by a well tabulated summary of its changes since June 30, 1905. In form this summary accounts for the change in the item of "Cash on hand." Space considerations prevent its reproduction here. This summary is accompanied by tables explaining the changes in such important items as "Funded and other fixed interest bearing debt," "Property and Franchises" and "Expenditures for additions and Improvements"; also by tables accounting in detail for the items of "Interest Accrued" and "Rentals Accrued" among the liabilities.

The increase in "Cost of Property and Franchises" includes the item of "Expenditures for additional Equipment," which is given in detail for all kinds of equipment. This is important, and should be compared with the changes in statistics of equipment owned, to see that they correspond. This comparison is made very difficult, however, because the equipment statistics include the rolling stock of the St. L., K., C. & C. R.R. whose line is not yet included in the "Cost of Property and Franchises"; also the equipment owned by two car trusts. Deducting the changes in equipment due to fluctuations in these three lists, we find, for instance, that the number of flat and coal cars and of stock cars owned by the company have decreased by 126 and 304 cars respectively, while the company has charged to "Cost of Property and Franchises" the cost of 200 new flat cars and 25 new stock cars.

Again the locomotive statistics show an increase of 23 locomotives, representing the purchase of 86, the acquisition of 8 through the lease of another railroad, the sale of 66 and the dismantling of 5. Of the 86 locomotives "purchased," 25 were really purchased by an equipment trust and are not yet owned by the Rock Island; the cost of 65 locomotives was charged to "Cost of Property and Franchises." The investigation of these charges to capital in the light of changes in actual property owned is further complicated, however, by the fact that the average capacity of each kind of freight car has been considerably increased, as also has been the average weight and tractive power of the locomotives.

An examination of the table of "Expenditures for Additions and Improvements" reveals the fact that the greater part of the cost of substituting 85-lb. rail for lighter rail, and of improving the ballast, has been charged to Capital, and not to operating expenses as one might be led to believe. Of the total cost of "renewals of rails" $577,747 was charged to Capital and $377,325 to Operating Expenses; $974,694 was charged to Capital on account of improvements in ballast, as compared with a total charge to Operating Expenses for "Repairs of Roadway" of $3,797,927.

The company's presentation of traffic statistics, on the whole, is satisfactory, although the reader has to seek in unusual places for some of the data. Most of the statistics, however, are displayed in their final form, saving the reader a great deal of laborious calculation. The tables on the following pages will throw some light on the growth of traffic and the efficiency of train management.

As compared with other roads the Rock Island does not seem to get full use of its passenger cars. It is transporting 8 or 9 passengers per car while other roads carry 11 or 12. Its economy of freight equipment is being improved; not only has the average car load and freight train load been greatly increased under the present management, but this increase consists almost altogether of revenue freight. The average earnings per train mile are on a much more satisfactory basis now than before the present management took charge. It is to be noticed, however, that the Rock Island has been maintaining a very high freight rate, from 9.3 mills to 10.4 mills per ton mile as compared to 6 to 8 mills collected by other companies.

To show the trend of finances the investigator needs a table showing for a series of years the gross earnings, operating expenses, net earnings, and fixed charges per mile of road operated. The following which is assembled and reproduced from the report for 1906 will serve the purpose.

From this we see that, although the total gross earnings have been greatly increased under the present management, the average gross earnings per mile have been decreasing until the last year. This was due to the rapid extension of the Rock Island mileage. The operating expenses could not be cut in proportion, leaving the net earnings to suffer. At the same time during the years 1903 to 1905 inclusive, the interest charges represented a growing proportion to the net earnings. It is to be noted, too, that the operating expenses are those stated by the com-

Year	Density of Fr't traffic per mile (ton miles)	Density of Pass. traffic per mile (pass miles)	Gross Earnings per mile	Operating Expense per mile	Ratio of col. 4 to 3%	Net Earnings per mile	Interest charges per mile
1901	369,452	61.115	6.912	4,421	63.96	2,491	937
1902	367,399	74.376	7,288	4.417	60.61	2,870	1247.
1903	428,116	73.382	6,359	4,021	62.23	2,338	916
1904	451,171	71,353	6,241	4,410	70.66	1,831	896
1905	438,537	76,453	6.091	4,295	70.50	1,797	1,085
1906	514,767	89.521	7,099	4,858	68.48	2,240	1,083

	1901	1902	1903	1904	1905	1906
No. of passengers carried one mile...	295,952,782	372,313,683	512,094,475	514,108,832	552,903,897	646,166,553
Density of traffic per mile of road....	61,115	74,376	73,382	71,353	76,453	89,521
Ave. No. of passengers per train.....	42.69	49.18	39.59	39.74	43.03	46.14
Ave. earnings per passenger mile.....	$.0281	$.0212	$.022	$.023	$.218	$.0215
Ave. No. of passenger cars per train..	5.17	5.17	4.70	4.81	5.22	5.29
Ave. earnings per train mile.....	$1.08	$1.21	$1.31	$1,053	$1,110	$1,158
Tons revenue freight carried 1 mile (3 figures omitted).....	1,789,093	1,839,127	2,987,577	3,250,750	3,171,457	3,715,622
Density of tonnage per mile of road..	369.452	367,399	428,116	451,171	438,537	514,767
Ave. train load—Revenue freight ...	181.64	177.71	189.13	225.48	228.04	245.19
Ave. train load—all freight.....	201.74	199.71	208.29	253.94	255.14	283.38
Ave. Car load—Revenue freight.....	9.07	8.40	13.45	14.53	14.06	14.54
Ave. Car load—all freight.....	10.07	9.44	14.81	16.37	15.73	16.81
Ave. length of haul per ton.....	232mi	223	224.6	239.6	234.7	241.4
Ave. earnings per ton mile.....	$.0099	.0104	.0104	.0096	.0094	.0093
Ave. earnings per train mile.....	$1.80	1.84	1.957	2.162	2,133	2,289

pany, and have not been modified by any increases or decreases for maintenance which might have been made as a result of this analysis.

The great growth of business since the present management took charge of the road is shown not merely in the absolute "Number of passengers carried one mile," and "Tons of freight carried one mile," but rather in the items "Density of traffic (passenger) per mile of road" and "Density of tonnage per mile of road." The passenger traffic fell off in density during the year 1903 and 1904, but has gained enormously since the latter date. The average gain in freight traffic has also been large.

In conclusion, certain defects of these reports have been pointed out; but on the whole, and as compared with the average report of a railway company, they may be said to be of a superior order. They are filled with tables which present the traffic and other statistics in the form required for purposes of comparison, and, as stated at the outset, they contain most of the information which the stockholder needs to aid him in forming a judgment as to the character of the management, and the trend of the business.

Correspondence.

Methods of Reasoning in Economics.

A discussion of the article, "What May Accountancy Teach Economics?" by F. A. Cleveland, Ph. D., in the October Number of "The Journal of Accountancy."

To the Editor:

In his article entitled "What May Accountancy Teach Economics?" Mr. Cleveland has undoubtedly pointed out the value of accountancy as an aid in studying and investigating the phenomena of industrial activity for purposes of economic research; he has at the same time, however, taken occasion to attack the method used and results obtained by many of the greatest economists, and to belittle the practical value of the science as it stands to-day, in such a way as to give a wrong impression as to its field and scope and to encourage the criticism so often heard among business men that economics is too theoretical and too unmindful of the actual facts of business. Mr. Cleveland denounces the *a priori* method of reasoning and advises us to forget the many "refinements of reason which have proceeded from the dim light of the academy undisturbed by the common brute facts of business." He rightfully says that accountancy can be of no service to this class of economic doctrines; but that is no reason why he should condemn the results of academic theorizing as of no value.

The difficulty is that Mr. Cleveland has failed to realize that the field of economics embraces two great and distinct classes of doctrines,—which may be termed social economics and industrial economics, (Cossa designates them as social and private economics), and he has disregarded the existence of the former division, and proceeds as though by economics we mean only the latter. In general, we may say that by social economics we mean the study of laws governing human activity as a whole, which involve such fundamental theories as rent, wages, interest, profit, etc., and by industrial economics we mean the study of particular industrial organizations, business methods, etc. In both groups the two methods of reasoning are used, but to the former the *a priori* method is indispensable, and to the latter, the *a posteriori* method is of the greater value. Boehm-Bawerk recognizes these two great classes of economic problems, and also the applicability of the respective methods to each. He says: "The problems of political economy, from a technical point of view, fall into two classes. Upon those of one class the mark of the Historical School is indelibly stamped. Nor would I proceed otherwise than by the historical-statistical method if I had to study, for example, the influence of retail trade on prices, or the economic influence of the division of property in land. Even here we can not do wholly without deductive reasoning . . ." Further on he says: "With the second class of problems, however, the case is different. For them experience has already done all, or nearly all, that it can do. It has thousands and millions of times over brought to our notice certain obvious outward relations, and a further

pursuit of empirical investigation would have no other result than to bring out, perhaps ten thousand or ten million times, the same familiar outward relations. The difficulty, and at the same time the scientific problem, is not in acquiring facts, but in mastering and correctly interpreting the facts long since acquired." He then illustrates this by reference to the theory of value.

So much for the two divisions of economics (one of which Mr. Cleveland ignores), and the methods of reasoning used in each. It is now necessary to show the relation between these two classes, and the dependence of one method of reasoning on the other. It is well known that the Classical School of economists used mainly the *a priori* method of reasoning. The German-Historical School attacked this method and attempted to use the inductive method entirely. The discussion carried on in the magazine *Science* in 1886 reveals the attitude of recent economists toward these two schools. In general, it may be said that both schools of thought are given due praise, and that what is needed is a combination of the two. In combating the purely Historical School, A. T. Hadley says: "The man who tries to reason without rigid hypotheses cripples his powers of investigation. . . . Where the German School of economists has made any advance in the field of political economy itself, it has been done by an abandonment of the so-called historical method, and by a rigid application of deductive reasoning combined with careful verification." Boehm-Bawerk also brings out this point and says that: "It is noticeable that in questions which from their nature require abstract-deductive reasoning, the historical economists invariably have used, and still use, the very same abstract deduction which they, in words, repudiate." It is evident, therefore, that the inductive method is of little use, unless used in conjunction with the deductive. Furthermore, although Schmoller relegates to a despicable "little corner of the great structure of our science" all that can be accomplished by the deductive method, yet it is true that the deductive school uses to a great extent the results accomplished by the old classical economists as a foundation for its theories, and, in fact, could never have accomplished what it has, if it had not had such a foundation on which to build.

The value of the deductive method of reasoning is too well understood to need defense here. What it has accomplished in other sciences, such as physics, chemistry, astronomy, etc., is well known. The theories of Adam Smith, Ricardo, and Mill have had great influence on the minds of the people in their practical life, and in shaping their legislation, and although many of their theories were fallacious, yet the science was in its infancy and has had to go through the same evolution and suffer from the same mistakes, as every science.

It is not my purpose to lay undue stress on the value of deductive reasoning in economics, and to relegate the empirical method to a less prominent place than it now holds. Economists realize more than ever the results possible through careful investigation and research, and much progress has been made in this direction, especially during the last few years. It must be remembered that a hundred years ago there was a

deplorable absence of statistical data, such as we have now, and that the inductive method could not have been used to such good advantage then as now. Furthermore, industrial conditions with which economists are now dealing, are of recent growth, and it takes time to investigate new and changing conditions so as to formulate any general laws which may be applicable to them. All we desire is that the valuable results of the old school of economists shall not be set aside as useless, and that the science of economics shall not suffer in its reputation among business men as not taking into consideration the actual facts of business. Undoubtedly the majority of the readers of THE JOURNAL OF ACCOUNTANCY are business men, many of whom are too ready to criticise the work being done by economists, and it is only right that they should know the attitude of economists as revealed by the discussions on methodology of recent years.

L. D. H. WELD,
Instructor in Economics, University of Illinois.

Dr. Cleveland's Response.

To the Editor:

In reply to the criticism of Mr. Weld, first permit me to correct what seem to be erroneous conclusions reached by Mr. Weld in the criticism of the paper entitled "What May Accountancy Teach Economics?"

He states "Mr. Cleveland denounces the *a priori* method of reasoning." This is not intended. The endeavor is rather to point out that many economists have made an unscientific use of the method. Science employs both inductive and deductive reasoning. The use which science makes of the inductive method is: (1) to formulate a working hypothesis as a basis for systematic research; (2) to interpret facts scientifically established by means of research. What are known as the several schools of economists have not used deductive reason for purposes of research, but have developed a philosophy from assumed premises.

Again, it is asserted that I have failed to realize that the field of economics embraces two great and distinct classes and doctrines, which may be termed "Social Economics" and "Industrial Economics." This is also an erroneous conclusion. In every relation discussed both of these interests have been specifically brought out. For example; in suggesting a basis for the classification of data pertaining to the economic activities of institutions, these institutions are considered of two kinds: (1) social and political institutions, in which are included the state, political parties, the school, the church and other cultural societies, the family, the fraternity, the club, etc.; (2) institutions organized for private gain, in which are included those having to do with organization and promotion, with investment and capitalization, with insurance and guaranty, and with operative activities such as extractive industry, manufacture, exchange, transportation, etc. In every economic relation adverted to, in the paper criticised by Mr. Weld, a distinction is made

between the social and political on one side and institutions of private gain on the other.

What I have attempted to indicate is (1) that there are distinct economic factors and economic relations to be scientifically considered; (2) that out of these economic relations different forms of income arise; (3) that for purposes of private income and social welfare certain economic institutions have been evolved; (4) that the data pertaining to these factors, relations, incomes and institutions, together with their functions and activities, are as accessible to students of economics, as are the data of botany, geology or astronomy; (5) that these data may be classified and coördinated, and that conclusions with respect to the whole field of economic activities may be scientifically established. These are the suggestions pertaining to economics. It is further indicated that the method of accountancy is the method of science; that the field of accountancy is necessarily limited to a diagnosis of conditions existing within particular institutions; that the field of economics is one of broad coördination in which accountancy stands in much the same relation as does the clinic to general medicine. The only question which is raised either by the paper itself or by the criticism offered by Mr. Weld is one that has been frequently discussed, viz.: Is the subject of economics one which lends itself to research, or must it remain an abstract philosophy? The paper is a plea for economic research. Many economists openly contend that theirs is not a research science, in which view Mr. Weld seems to share.

F. A. CLEVELAND.

The Fee Question Again.

To the Editor:

An editorial in the October number of THE JOURNAL, page 459, referring to the next convention of the American Association of Public Accountants makes mention of "three subjects of great professional interest; namely, advertising, audit companies and accountants' fees." The phrase might well have read (in one respect at least), "of paramount importance," as affecting the future of organized accountancy.

The question of advertising may safely be left to each individual to decide for himself. It is well to remember, however, that we never see the profession of law or medicine advertised except in country places to help out a struggling local paper. Audit Companies can be left to chew their cud alone; and any individual or association of accountants will be wise if they refrain from injecting anything acrimonious into that cud.

The question of fees, however, to be regulated by any *organized* accountancy board, overtops the other two. Such action would be impolitic and undemocratic. Who is to decide as to the ability of an accountant to earn a given sum for his services, more or less? Who shall define the class to which A. or B. shall be assigned and the sum they shall receive for their services? And are they to remain in that assigned

class until promoted to the class of the Hereafter? And who are these men that are to decide this momentous question of the quality or quantity of gray matter possessed by their less (in their estimation) fortunate associates? The mere proposition savors of arrogance.

No, each practitioner, in this as in any profession, must be allowed to regulate his fees for his own services. If he gets his price, well and good; if not, he must adopt the next best course. The adoption of a system of control of fees would prove a stumbling block in the advance of organized accountancy.

From associated wage control to the control of a walking delegate is but a short step. Then what?

Very truly yours,

J. S. PARSONS.

BOSTON, MASS.

Errata.

Members of the American Association of Public Accountants are requested to note the following corrections to the report of the annual meeting in the November number.

On page 93 instead of "Illinois Society of Public Accountants," read "Illinois Society of Certified Public Accountants."

On page 97 strike out the title "Massachusetts Association of Certified Public Accountants."

On page 81 in the statement, "Mr. T. Cullen Roberts was nominated on behalf of the New Jersey State Society," read "Illinois" instead of "New Jersey."

Mr. John B. Geijsbeek, of the Colorado Society of Public Accountantants, desires us to state that his remarks before the American Association, as given on pages 79 and 80, were incorrectly reported.

Michigan C. P. A. Examination Questions.

Examination for the degree of Certified Public Accountant. Detroit, July 27-28, 1906.

PRACTICAL ACCOUNTING.

Friday, July 27, 1906, from 1:30 p. m. to 6:30 p. m.

75 credits necessary to pass, out of a possible 100 credits.

Each complete answer will receive 16 2-3 credits. Do not repeat questions on examination papers but write answers only, designating the questions by number. The intelligence indicated by answers will be considered in marking the applicants, as well as the technical accuracy of such answers.

1. A corporation is organized under the laws of the State of Michigan, with Capital Stock $250,000.00, of which $100,000.00 is preferred and $150,000.00 is common stock, shares $100.00 each. The purchasers of preferred stock at par are to receive an equal amount of common stock free, all the preferred stock is subscribed and paid for, leaving $50,000.00 of common stock unsubscribed. It is found that the remaining common stock cannot be sold for sufficient cash for requirements and the holders of preferred stock donate to the Treasury $50,000.00 of their common stock. The common stock is sold at 50c on the dollar. Provide journal entries covering the above.

2. A gas company shows the following trial balance at the end of its first year of business:

Manufacturing Labor...	$ 5,400.00	Capital Stock.....	$ 500,000.00
Boiler Fuel	3,200.00	Bonds	500,000.00
Generator Fuel	5,400.00	Accounts Payable.	48,000.00
Oil	126,000.00	Gas Accounts	342,600.00
Purifiers	3,200.00		
Repairs Works	2,600.00		
Expense Works	3,900.00		
Water	1,500.00		
Insurance	300.00		
Taxes	4,800.00		
Distribution Labor and Material	12,000.00		
Office Expense	13,500.00		
Stable Expense	4,000.00		
Repairs Mains	1,800.00		
Repairs Meters	600.00		
Repairs Services	700.00		
Street Lighting	300.00		
Advertising	300.00		
Maintenance Arc Lamps ..	1,500.00		
Licenses	1,000.00		
Discounts	34,000.00		
General Expenses	5,000.00		
Sundry Debtors Gas	40,000.00		
Sundry Debtors Mdse.....	10,000.00		
Cash	29,000.00		
Bond Interest	25,000.00		
Plant	1,055,600.00		
	$1,390,600.00		$1,390,600.00

The inventory of Manufacturing Material is $20,000.00
The inventory of Distribution Material is 4,000.00
No other inventories of any description are carried.

The amount of gas manufactured during the year was 300,000,000 cubic feet. Amount sold, 270,000,000 cubic feet. Unaccounted for, 30,000,000 cubic feet.

Give: 1st. The Manufacturing Cost of Gas sold. 2d. The Distribution Cost of Gas Sold. 3d. Prepare Statement of Operations of the Company and Balance Sheet of Assets and Liabilities.

3. Following is a list of the accounts appearing on the Trial Balance of a manufacturing company which deals in finished merchandise purchased as well as its own products. From this list, and without using figures, draw up plans of Financial Statements (Balance Sheet, Manufacturing Account, Profit and Loss Account, etc.) in the form which you think most suitable:

Accounts Payable.
Salaries, Management.
Capital Stock.
Bills Receivable.
Cash.
Salaries, Office and Store.
Real Estate.
Fuel.
Insurance (Plant.)
Light.
Freight (on Mdse. purchased.)
Machinery and Tools.
Buildings.
Sales (own product.)
Inventory, own products.
Inventory, Raw Materials.
Inventory, partly Manufactured Goods.
Inventory, Merchandise purchased.
Sales (Merchandise purchased.)
Inventory, Repair Supplies.
Sales (Merchandise purchased.)
Undivided Profits (end of last year.)
Purchases (Merchandise.)
Rent, Factory.
Rent, Store and Office.
Printing and Stationery.
Accounts Receivable.
Advertising.
Purchases (Raw Materials.)
Machinery Repairs.
Productive Labor (Factory.)
Labor (Warehouse.)
Office Furniture.
Reserve for Bad and Doubtful Accounts.
Reserve for Depreciation.
Insurance (Merchandise.)
Bad and Doubtful Acounts.
Travellers' Expenses and Salaries.
Management Salary, Factory.
Management Salary, Office.
Discounts allowed.
Interest Payable.
Depreciation.
Sundry Factory Expenses.
Postage.
Subscription and Donations.
Discounts Received.
Rents (Receivable.)
Insurance unexpired, Plant.
Insurance unexpired, Merchandise.

4. A manufacturer is desirous of securing a partner and furnishes a statement covering five years' operations as follows:

ASSETS.

Buildings	$20,000.00
Machinery and Fixtures	75,000.00
Inventory Mdse. and Supplies	50,000.00
Cash	5,000.00
Accounts Receivable	40,000.00

LIABILITIES.

Accounts and Bills Payable	30,000.00
Sales average per year	500,000.00
Wages paid per year	170,000.00
Expense, Selling and General, per year	35,000.00
Material Purchased	260,000.00

Buildings are on leased ground, lease expires in ten years, annual land rental $1,000.00. Buildings revert to owner at expiration of lease.

New machinery when installed ten years ago cost $50,000.00. Additions since cost $25,000.00; no depreciation has been charged off. All repairs and replacements charged to expense.

What, in your opinion, would be a fair price to be contributed for a half interest? Explain fully.

5. A. and B. each carrying on a similar business agree to form a partnership, the new firm to take over the assets and assume the liabilities of each. The following trial balance represcnting the book accounts was presented:

—A—

Capital	$	$ 40,000.00
Machinery and Fixtures	30,000.00	
Cash	2,000.00	
Bills Receivable	5,000.00	
Accounts Receivable	30,000.00	
Inventory Merchandise	25,000.00	
Wages	7,000.00	
Wages due		250.00
Expense	10,000.00	
Bills Payable		10,000.00
Merchandise Account		40,000.00
Accounts Payable		20,000.00
Repairs	1,250.00	
	$110,250.00	$110,250.00

—B—

Capital	$	$ 50,000.00
Machinery and Fixtures	30,000.00	
Cash	4,000.00	
Bills Receivable	8,000.00	
Accounts Receivable	40,000.00	
Wages	9,000.00	
Wages due		500.00
General Expense	15,000.00	
Bills Payable		15,000.00
Merchandise Account		50,000.00
Inventory	32,000.00	
Repair Account	2,500.00	
Accounts Payable		25,000.00
	$140,500.00	$140,500.00

Each partner is to draw half the profits. Formulate opening entries for the new firm. At the end of the year a profit is made of $30,000.00. Create a Trial Balance and Inventory, using your own figures to produce that result; divide the profit between the partners and make Statement of Assets and Liabilities.

6. A corporation organizes under the Laws of Michigan to conduct a manufacturing business. Authorized Capital $400,000.00, half each common and preferred stock, shares $100.00. Five incorporators subscribe each for ten shares of common stock at face value. John Smith purchases from three manufacturing companies, their complete plants for $395,000.00 and transfers said plants to the Incorporated Company for the remaining $395,000.00 of common and preferred stock and $150,000.00 of First Mortgage 5% bonds out of a total issue of bonds of $200,000.00, leaving $50,000.00 of bonds in the treasury.

Make opening Journal entries and Trial Balance showing the Company's condition after the transactions.

THEORY OF ACCOUNTS.

Saturday, July 28, 1906, from 8:30 a. m. to 12:00 noon.

75 credits necessary to pass, out of a possible 100 credits.

Each complete answer will receive 10 credits. Do not repeat questions on examination papers but write answers only, designating the questions by number. The intelligence indicated by answers will be considered in marking the applicants, as well as the technical accuracy of such answers.

1. Define bookkeeping. State various kinds with explanations.
2. What books are necessary for recording the transactions of an Incorporated Company? State the use of each book mentioned.
3. Define the following: (*a*) Fixed assets and fixed liabilities. (*b*) Current assets and current liabilities.
4. Define "Merchandise Account" and state how in your opinion it should be kept.
5. What is the purpose of the following accounts and how are they created on the books: (*a*) Sinking Funds? (*b*) Reserve Funds? (*c*) Depreciation? (*d*) Good will?
6. Name the various forms of Capital Stock, with full explanations.
7. How would you ascertain the profits of a firm, whose books are kept by single entry?
8. What is "dividend?" State when and how dividends become effective. State how the declaration and payment of dividends are usually recorded in books of account.
9. State the use of a Private Lock Ledger and its relation to the General Ledger.
10. (*a*) What constitutes Manufacturing Cost? (*b*) What constitutes Selling Cost? (*c*) What relation do cumulative preferred stock dividends bear to the cost of operating?

AUDITING.

Saturday, July 28, 1906, from 1:30 p. m. to 5:30 p. m.

75 credits necessary to pass, out of a possible 100 credits.

Each complete answer will receive 10 credits. Do not repeat questions on examination papers but write answers only, designating the questions by number. The intelligence indicated by answers will be considered in marking the applicants, as well as the technical accuracy of such answers.

1. What is the general course for an accountant to follow when called upon to audit the books of any business?
2. How far should an auditor inquire into the work of his predecessor?

3. What books or records of a partnership or corporation should be examined by an auditor?

4. What are the most important things an auditor has to certify in a balance sheet showing Loss and Gain and the financial condition of a business?

5. Mention the methods of manipulating accounts which are most commonly resorted to for the purpose of concealing fraud and embezzlement.

6. How would you classify the accounts in preparing a statement of the following:

(*a*) Gas and Electric Light Company?

(*b*) Electric Railroad?

(*c*) A Manufacturing Business?

7. What accounts would be affected by depreciation on leased properties?

8. Should depreciation be written off the accounts of a corporation whose property is of a wasting nature, such as a quarry or a mine? Give reasons.

9. When books show large additions to buildings and machinery consisting of portions of payrolls and materials used, without items of detail, what means should be taken to prove or disprove the accuracy of the charges?

10. State briefly the work done by you in connection with some audit in which you have been engaged.

COMMERCIAL LAW.

Friday, July 27, 1906, from 8:30 a. m. to 12:00 noon.

75 credits necessary to pass, out of a possible 100 credits.

Each complete answer will receive 10 credits. Do not repeat questions on examination papers but write answers only, designating the questions by number. The intelligence indicated by answers will be considered in marking the applicants, as well as the technical accuracy of such answers.

1. What is a contract? (*a*) Can a contract ever be implied? (*b*) Can a valid verbal contract be made where the consideration, if any, is merely one promise for another?

2. What is the effect of an endorsement, "without recourse," on a promissory note? (*a*) Is the endorser of a promissory note relieved from liability where the holder has failed to notify him of the time it became due and the default of payment by the maker?

3. What is a corporation? (*a*) How does it differ from a partnership? (*b*) How does it differ from a joint stock company?

4. What is the meaning of the word "Stock" in the reference to a corporation? (*a*) What does it represent? (*b*) How is it transferred? (*c*) What right have stockholders in and to the corporate property?

5. What is a receiver? (*a*) What is his first duty on taking possession of property or trust funds committed to his care?

6. What is a trustee in bankruptcy? (*a*) How appointed and what are his duties?

7. How much must a debtor owe to enable his creditors to force him into bankruptcy? (*a*) Is it necessary that he shall have committed an act of bankruptcy? (*b*) State briefly what is meant by acts of bankruptcy. (*c*) What is meant by a composition with creditors, and the effect thereof?

8. What are some of the principal features of the statute of frauds?

9. What is your understanding of the statute of limitations?

10. A general agent of a corporation, for the accommodation of a personal friend endorsed his friend's note, as general agent of the corporation, before it was endorsed by the payee. Is the corporation liable for the payment of the note? (*a*) Give reason.

News and Notes.

The Massachusetts Society.

A permanent committee on C. P. A. legislation has been elected by the Incorporated Public Accountants of Massachusetts with full power to draw up a bill and to have it introduced at the next session of the State Legislature. The bill has already been drafted and will be presented next month. The committee is composed of William Dillon, Chairman, William F. Hall, Herbert F. French, Frederick C. Tufts and Amos D. Albee.

At a recent meeting of the Joint Special Committee on Insurance of both Houses of the Massachusetts Legislature, Dr. Frederick A. Cleveland, Mr. Harvey S. Chase, and Mr. William Dillon argued in favor of a more scientific system of accounting and auditing for insurance companies. Their remarks were heard with great interest and appeared to impress the members of the Joint Committee favorably.

Oakland Association of Accountants and Bookkeepers.

The meetings of this society are now held in rooms 45-46 Blake Block, Oakland, California. Mr. W. W. Cooley, of Alameda, was admitted to membership at the meeting held on September 25th. Arrangements have been made for the services of a pianist and music will be a feature of all future meetings.

The Institute of Accounts.

At the regular monthly meeting of the Institute of Accounts, held at the Fifth Avenue Hotel, New York City, on Friday evening, December 14th, the subject for consideration was—"Mistakes, Their Cause and Remedy." The discussion was opened by Samuel D. Patterson, C. P. A., and was participated in by all the members present. The meeting was a closed one, members only being admitted.

New York Society of Accountants and Bookkeepers.

At the meeting of this society held on Tuesday, November 20th, Mr. T. J. Friedleben read an excellent paper on balance sheets, illustrating his lecture by diagrams on the blackboard. At the meeting held on Tuesday December 11th, the election of officers was held and resulted in the election of John C. Penrose, president; George C. Oeters, vice-president; Oliver P. Taw, treasurer; Ashley T. Allen, financial secretary; Thomas L. Woolhouse, secretary. Mr. M. J. House and W. T. Hall, Jr., were elected members of the executive board for the term of three years. Owing to the fourth Tuesday of this month falling on Christmas day, no meeting will be held. At the meeting to be held on Tuesday, January 8th, Mr. Thomas Conyngton, of the New York Bar, will deliver an address on financing an enterprise.

Book Department.

INDUSTRIAL AMERICA. Berlin Lectures of 1906, by J. Laurence Laughlin, Ph. D. New York, 1906.

In the spring of 1906 Professor J. Laurence Laughlin, the head of the Department of Political Economy in the University of Chicago, was invited to deliver a course of lectures before the Vereinigung für Staatswissenschaftliche Fortbildung in Berlin. This invitation came in connection with the interchange of professors between German and American universities. Professor Laughlin chose to deal with the industrial problems which are at present occupying public attention in the United States. For the benefit of those "who may wish to inform themselves upon the pivotal issues of the day" and who have no time for an exhaustive course of reading, these lectures, which present interesting and instructive discussions of the following topics, namely, American competition with Europe, protectionism and reciprocity, the labor problem, the trust problem, the railway question, and the banking problem, are reproduced in English in this volume entitled "Industrial America."

In discussing American competition with Europe, Professor Laughlin asks two questions; viz.: Why are American goods wanted abroad; why can they be sold cheaper than the goods of others? The answers are easily found in the case of the products of the extractive and agricultural industries. The European supply is less than the European demand; Americans produce more than they consume. Further, the great productiveness of American lands and cheap transportation enable these products to be turned out and offered in the European markets at a low cost of production and price per unit in spite of the high wages of agricultural labor. Agriculture has been undergoing such an "industrial revolution," too, as to reduce the time involved in different processes from forty to ninety-eight per cent. With a continuing improvement in agricultural methods our agricultural products may hope to compete with European products in their own markets for an indefinite time.

In manufactures, however, Europe could provide the whole of her needed supply. Yet American manufacturers are underselling their European rivals in their own markets, in spite of their greater transportation costs. Out of a total of $1,435,100,000 of domestic exports, twenty-five per cent. consist of manufactures; the exports of twelve classes of commodities in 1904 each exceeded $5,000,000, while some of these exceeded fifty, sixty, and even one hundred millions. The causes of American success Professor Laughlin finds in several facts. The mass of our laborers receive a common school education in the free schools; many of them supplement this by education in bookkeeping, stenography, business practice, etc., found in the private business colleges. This increases their intelligence and adaptability, and stimulates inventiveness. Our *entrepreneurs*, also, receive a splendid professional preparation in the engineering, mechanical and technical institutions of the country; this coupled with

the further fact that "the best brains of the country enter into trade and industry" makes America "preëminent in its class of bold, daring, energetic, far-seeing, forceful managers."

Our tax system is bad: The high municipal taxes are avoided by the manufacturers who remove their plants to points where direct taxes are less burdensome; the indirect taxation found in our tariff system falls mostly on the laboring class. "A reduction of the import duties, therefore, would probably lower our labor cost, and thus help us in our competition with foreign countries." The immense decline in our railway rates, from two cents per ton-mile in 1880 to 0.78 cent in 1904, has aided wonderfully in our foreign competition; the tendency of our western traffic destined to foreign trade to be diverted toward the Gulf ports is bringing a further saving in transportation. The rich gifts of nature in iron and copper ore, and coal deposits, cotton production, etc., have been a chief element in our low expenses of production; a no less striking cause is the remarkable diffusion of inventiveness among the American workmen, which has given American producers the most improved machinery in the world. This inventiveness and ingenuity combined with the adaptability of the American workman has helped to make him more efficient than the European laborer even in proportion to the wages paid. American institutions stimulate this inventiveness and efficiency by offering social distinction to the economically or financially successful. The fact that every prize is open to character and ability, that the diffusion of elementary education makes the ordinary laborer "acute," his high standard of living, all stimulate ambition and make the high priced labor of America cheap in fact because of its superior efficiency. It is all of these facts together which accounts for our relatively low cost of production per unit of product, in spite of the high wages paid, and enables our manufacturers to undersell their European rivals.

Professor Laughlin is opposed to Protectionism. "In the Rocky Mountains a wild-cat is said to have leaped from a tree upon a hunter, who happened to catch the animal so that it could not bite, but also so that he did not dare to loose his hold. Thus the beast was carried for miles until, with assistance, it was finally killed. In much the same way the United States finds itself in the clutches of protectionism; it cannot rid itself of the system, it is a heavy obstacle to foreign trade, and it needs outside help to destroy the incubus. Our resources and our strength are sufficient to bear the burden of this system for the time, but it is openly admitted that it is now holding us back from actively expanding our trade with foreign countries. Possibly we may hope to find some neighbors who in friendly reciprocity, may help us lighten the burden we are carrying."

The protective system was the result of an accident, a Civil War measure, but once having been established, every effort to abolish the system or to reform it has failed outright or met with only temporary and apparent success. "In the main, the advocates of protection try to continue all rates once established. The result of such a tendency, of course, has been the creation of a rigid and inflexible range of duties quite dis-

sociated from the inevitable changes due to the progress of industry." Professor Laughlin shows that the reciprocity features of the McKinley Act of 1890 and of subsequent acts, have not been offered in good faith, have not truly offered reciprocity. It has been "Tropical Reciprocity"—the articles the duties on which might be reduced by agreement have been only those articles which are not produced in the United States. Every proposed treaty which has provided a reduction in the duty upon an article of domestic manufacture has been defeated in the Senate. "No industry has yet been found willing to admit foreign competition for the sake of gaining a market abroad for the products of other industries. Hence reciprocity, in practice, stands convicted as an absurdity." Our high protective duties are injuring our foreign trade by exciting European countries to retaliatory measures against our products. We refuse to give Germany low duties on raw sugar; the retaliation injures the American farmers.

"The time is ripe for a campaign against the excesses and abuses of protectionism, if any party has the wisdom to see that courage is a source of success in American politics. The conflict has been waged about wool, woolens, and iron and steel." Yet although woolens have received heavy protection, the industry grows less rapidly than other industries—than the steel industry which no longer needs protection. The duty on raw wool injures the woolen manufactures, and does not increase the production of raw wool in this country. "In fact, whatever advantage there has been in the duty on wool has accrued to the cotton grower, whose material is superseding wool.

Professor Laughlin finds the explanation of our political corruption largely in our protective system, which makes our industries owe their existence, not to exceptional skill, situation, climate, or natural resources, but to a slender majority in a vote of Congress. "Once establish protective duties, even at a low level, and heavy campaign funds will inevitably be drawn to support the candidates of the party pledged to maintain the new duties. A new motive is introduced; it is not whether you approve this or that foreign policy, this or that position of the army, this or that educational scheme—but whether your personal pecuniary interests will be secured by the election of a certain man. There comes in the damaging confusion between political principles and self-interest—which is the very essence of bribery. A group of party managers, once in power, can command unlimited money and active support in every test of power on the hustings; and as time goes on it can practically intrench itself in office behind the self-interest of industrial establishments." Protectionism derives its power from the self-interest of the protectionists; the latter have captured the United States Senate, and to intrench themselves in their position, they control a chain of newspapers, whereby to teach the public, and the labor unions especially, that the level of wages in the United States depends on the maintenance of the tariff. Protectionism is sustained by adroit methods. Since 1890 the Republican Party has been afraid to make that the issue of a campaign; instead it diverts attention to the

money question on which it takes a sound position. "The completion of legislation for the gold standard and the question of an elastic bank currency are delayed so that they could be used as rallying points in future emergencies."

The third part of the volume contains an interesting discussion of the labor problem in the United States. Money wages were much higher in 1900 than in 1850, and the prices of food much lower, yet discontent is growing. This is due largely to the increase in the number of the laboring man's wants and an awakening of his ambition. His aims are for a higher standard of living, increased wages, shorter hours, and better conditions under which the work is done. On the whole these are a sign of healthy growth. Yet the rank and file of the laboring class are permeated with some absurd ideas; they believe that "there is no economic reason why the wages, for instance, of a plumber, now receiving $4.00 a day, should not be increased to $10.00 or even $50.00 a day." When, as the result of a strike, employers are led to give an increase of wages, this does not produce satisfaction, but is considered "evidence that more will be disgorged of what belongs, by right, to labor, if only pressure enough is applied to employers." There is a general belief that large fortunes are necessarily accumulated at the expense of the laboring class. Laborers need to be taught that "making work" cannot result to their advantage, that the best way to make and increase wages is for the laborer to increase his own efficiency. Professor Laughlin does not find that labor unions can have much influence in raising wages; as long as the great majority of laborers are outside the unions, the latter have in fact no monopoly of labor and their demands will be met by the competition of the non-unionist. Even if they could secure a complete monopoly of the supply of labor they could not materially increase the wages of all without increasing their productiveness and efficiency. The proper method, therefore, is not unionism, but to train the laboring man to be a more efficient producer.

In the chapter on "The Trust Problem," Professor Laughlin gives a brief history of the development of the form of large combinations from the "pool" through the "trust" to the present corporate form. The reason for the existence of the great trusts is found in the fact that large combinations offer opportunities for a better organization—it is the survival of the most productive forms of business under the stress of competition. Better control over the price of the product is also a strong incentive. The trust secures great savings by being able (1) to dispense with the great majority of the salesmen who are needed under the competitive régime, (2) to eliminate the wastes in conveying goods from factory to consumer through the jobber, (3) to deal more firmly with unfair claims for shortage, (4) to reduce the number of stores and offices and the variety in the stock of goods which need be kept in the leading cities, (5) to obtain loans in the large financial centers at the lowest rates of interest, (6) to buy materials on a large scale, (7) to save freights by filling orders from the nearest plants, (8) to carry specialization further by devoting

separate mills to the production of articles of more than one variety, (9) to close up the inferior plants, except during periods of heavy demand, and supply the market from the most efficient mills, (10) to steady the fluctuations in the price of the product. The "trust" also has a special advantage in meeting the attacks of organized labor because of its control of funds and its ability to organize employment bureaus with connections in many parts of the country, skill in getting information as to the resources and internal dissensions of labor unions, etc.

The great danger in the trust régime is that these combinations may result in monopolies which will threaten the competitive régime. In fact, it appears that many trusts already possess practical monopolies of the supply of their products, with the result that the progress of society is not all passed on to the consumer, in lower prices. But there is a practical limit to the increase in trust prices. The trust must be ever vigilant in adopting the most up-to-date methods for fear of a possible rival who might appear in the field better equipped than itself; if prices are maintained too high, there is always the danger of new competitors. A rival who is crushed out because of inferiority deserves no sympathy from the general public, though this is otherwise if his downfall be due rather to discriminations in railway rates. The latter case presents a very difficult problem because it is the large shippers who are able to force railways and legislatures to do their bidding.

Professor Laughlin does not find that the tariff can be assigned as the cause of the trusts—competition can be as keen in a protected as in a non-protected industry; nevertheless "the abolition of the duties on goods made by the trusts is the one powerful means by which effective [foreign] competition may be secured, and a monopoly of the supply prevented from injuring the public." "The problem of regulation is to permit large companies; but to prevent, if possible, monopoly. Consequently it may be necessary to make it a criminal offense for a trust to charge different prices to different buyers. If this were done it would be practically impossible for a trust to crush out rivals by low prices in one part of the country while recouping itself by high prices in another." Publicity of accounts if secured, Professor Laughlin thinks, would be effective only after a change in the attitude of the courts; the business of a large corporation would have to be looked upon as a public, not a private, calling so that all comers would be treated alike, as is our attitude toward the railway industry. But whatever the method of control, the trust has come to stay and "must be made consonant with the maintenance of competition." It is not a step toward socialism, but is the product of competition.

The railways have practically abolished distance. There are two classes of difficulties presented in our railway problem: (1) One relates to unequal rates between rival communities or places; (2) another relates to discriminations between shippers in the same places." After reviewing the circumstances which give rise to this problem, Professor Laughlin proceeds to a discussion of the various proposals for its solution which are now before the public. "The immediate question at issue," says Professor

Laughlin, "is whether in case of a disputed rate, the one to be enforced in the long time before final adjudication by the courts shall be the old rate fixed by the railway or a new rate fixed by the [Interstate Commerce] Commission." If the former method be adopted, and the railway company be required to put the sum at issue in escrow pending the decision of the court, this sum would be handed over to the shippers if the railway company should lose. This would merely place a clearly unearned bonus in their hands, since, even if so inclined, they could not repay the unknown and scattered shippers. The alternative would be equally unavailing, because if the shipper had to place the disputed sum in escrow he would not lower the price to the consumer, because if the railway company should win he would have to pay this difference over to the company.

Professor Laughlin finds the same justification for combinations among railways as among industrial companies. The Northern Securities decision has had little effect on rates because the railway lines involved are still controlled by the same group of capitalists; its only significance lies in the extension of the anti-trust act to railway combinations.

In Professor Laughlin's discussion of the banking question, we find repeated the idea expressed in his *Principles of Money,* that a bank deposit represents goods which have thus been coined into a medium of exchange; the man who sells goods on credit takes his bill of lading to the bank and coins it into bank credit which he can use at once in making other purchases. Bank deposits rise or fall with the volume of exchanges that are affected. The sum total of checks represents the work done by this medium of exchange; in 1905, as indicated in the bank clearings, this amounted to $140,000,000,000. With each deposit comes an asset in the form of a promissory note or collateral, which is the security of the deposit liability. Since these assets represent transactions in goods, the deposit currency has a security corresponding to the soundness of general trade and industry, which "is after all the only real security for business engagements, be they bonds, mortgages, or notes." This deposit currency is perfectly elastic during all ordinary seasonable changes in the volume of exchanges. In times of a monetary stringency, the clearing house certificates, which represent the pick of the collateral arising in connection with ordinary deposits, perform a similar function, namely, to coin goods into a medium for their own exchange.

"The chief defect of the present national bank note system is that these notes cannot be handed out as freely as deposit accounts can be created. Being restricted in amount to the par value of the bonds deposited with the United States Treasurer, bank note circulation does not expand and contract with the demand for this form of medium of exchange,—its amount is regulated rather by considerations touching the credit of the United States Government. Bank note circulation is least responsive when the demand for it is greatest. To the extent that the bank notes are depended upon, their rigidity would increase the intensity of any monetary stringency." Professor Laughlin thinks that a bank note circulation based on "commercial assets" would be perfectly safe. "A limitation of the issues to some percentage of the capital would of itself make the notes a

very small percentage of a very large body of assets in the loan item." But even this limitation is a relic of by-gone times. "The business done by a modern bank, and the amount of its loans and deposits, bears no direct relation to its capital. For each loan, the bank, if wisely managed, obtains sound securities in its assets to a value greater than the loan; and a bank is not limited in making loans by its capital, but only by the quality and soundness of the collateral offered. Professor Laughlin's whole discussion of the banking problem, but a part of which is summarized above, will be of interest just now in connection with the work of getting practical legislation through Congress.

WEBB'S COMPARISONS SIMPLIFIED, or How to Select the Best Life Insurance Company. A book of comparisons compiled from sworn statements to the insurance departments January 1, 1906. pp. xv + 147. Price, $1.50.

This is an enlarged edition of the author's book of the same title published in 1905. It presents the important financial statistics of forty-three life insurance companies, in tables which enable a ready comparison of the financial strength, income, expenses, surplus, dividends, ratio of expenses to premiums, etc. to be made. One of the six tables, which constitute the book, shows the amounts of loadings earned, percentage of loadings used for expenses, and the actual amount used on each one thousand dollars, at age 35, on seven different forms, embracing ordinary life, ten, fifteen and twenty payment life plans, and ten, fifteen, and twenty year endowments. The work is designed specially for the use of insurance purchasers to enable them to select the form of life insurance which is best adapted to their needs and to choose the company which will offer the best advantages for the form selected.

THE MAKING OF A MERCHANT. By Harlow W. Higinbotham. 210 pp., 5½ x 7¾ inches. 1906. $1.50.

The author of this volume is well known as a partner in the firm of Marshall Field & Company and as president of the World's Columbian Exposition. He writes from the standpoint of a successful man, who has "gone through the mill" himself and is anxious to give practical hints to workers in the same field. The preface well says: "Occasionally a boy or young man of sufficient character and receptivity is found who is willing and eager to profit by advice from those of long experience, even though it may be given in painfully familiar terms, and may sound sage, tedious, and 'preachy.' It is for the aspiring young men who are animated by this spirit of tractability that these suggestions and comments are made by one whose views are the result of thirty-eight years of experience in unbroken connection with an enterprise that has had many changes in the personnel of proprietorship, and now has more than seven thousand employees." The

book is of interest and value, however, to others besides the beginners in business. Many an employer of labor or small proprietor could get from its pages suggestions as to choosing and handling men, which would add directly to his profits.

Mr. Higinbotham is especially qualified to write of credit work, which has been the chief study of his life, and his three chapters on "The Qualifications of a Good Credit Man," on "Difficulties and Dangers of Credit," and on "The Storekeeper's Credits and Collections" are, on the whole, the most valuable in the volume. First in the list of requirements for a good credit man, the author puts a sound knowledge of agriculture and other basic industries; second, a practical familiarity with accounts; and third, an acquaintance with commercial law. With information along these three lines, combined with tact and common sense, a young man should find sure and notable success in credit work.

The book is interesting and readable throughout. It will prove a useful addition to any business man's library.

ELECTRIC RAILWAY ACCOUNTING. By B. W. Brockway. New York. $1.25 net.

One of the most valuable and important contributions which has been made to the literature dealing with accounting during the present year, is the little book on "Electric Railway Accounting" by B. W. Brockway. The author, who is the General Auditor of the Nashville (Tenn.) Railway and Light Company, and ex-Secretary of the Street Railway Accountants' Association of America, has compressed into eighty-four pages a mass of really valuable material on this branch of the electric railway's business. After setting forth what a report should be, the author proceeds to work out the salient features of a monthly report. Considerable attention is then devoted to a discussion of the relation of expenses to earnings and other units of comparison. In this connection, the author takes occasion to point out the unserviceability, from a practical standpoint, of many of the units of comparison upon which the average accountant places so much reliance. A chapter is devoted to the value of curves, as a means of expression, to the general manager, the president and the board of directors in determining the relative efficiency of the system. A similarly critical analysis is made of the balance sheet and accrued and suspended accounts. The remaining chapters are devoted to a discussion of the value of expert examinations, to the qualifications of the railway accountant, and the proper arrangement and equipment of the accounting office.

This little book is of value in that it consistently and emphatically exposes the weakness and futility of the examination of this type of industry as it is made by the average accountant. The author passes over in a paragraph the question of the choice of paper and the color of the ruling, to which the average work on accounting will devote chapters. The arrangement of the report itself, he frankly admits to be a matter of

small consideration. The book is a practical argument for work by the accountant which will possess, when it is finished, some real value to the company which is paying him. The aim to be sought after can best be presented in the author's own words: "When the condition of the company has been thoroughly examined, the report should contain a summary of the findings and be recapitulated in a simple straightforward story, so that those not versed in the language or the technical statements of accountants may easily and thoroughly understand what has been the result of the search—for search it literally represents . . . . The work of an accountant has reached a plane where something more than bookkeeping is required of him. He should, as a part of the term 'ability' understand the operation of a railroad, not as an ex-operating man, perhaps, but certainly he should have a grasp of the theory of operation. The operating manager and he should work so together, and he should be acquainted with the operating conditions in such a real way, that he will understand the viewpoint of the manager as well as the advantages and disadvantages under which the men work from whom he receives information. He ought also to see the construction of the property and to understand it, or at least to know the theory upon which it is planned . . . . . In other words, the successful accountant is a well-rounded man. Remove from him the word 'bookkeeper' (who is a recorder only), and find him with the proper qualifications, he becomes an important officer of the company. His understandings of causes, through his experience with them, will make the work of his department clearer and more to the point. He is essentially a quizzical officer; he it is, of all the officers, who is most called upon to continually ask 'Why?' and 'What for?' the replies to which will make his analysis of accounts and causes and effects of the utmost value to the operating manager or the president."

ST. LOUIS SECURITIES. A history and statement of condition of the principal financial institutions, traction and industrial companies of St. Louis. Compiled and edited by Craig MacQuaid. 1906. pp. 107.

This is a handbook with index, designed to "present in convenient form, for ready reference, important statistics and other facts, obtained from official sources" relating to the principal financial, traction, and other companies of St. Louis. It is divided into four sections, devoted respectively to banks and trust companies, traction companies, "other securities," and municipal and government bonds.

The information concerning each bank and trust company includes the following: Date of organization, location, name of transfer agent, whether its stock is listed on the St. Louis Stock Exchange, date of annual meeting, names of the principal correspondents, details as to capital stock, dates and rates of dividends, a statement of resources and liabilities, names of officers and directors. Where possible this plan is also followed with companies of other classes, giving in addition the funded debt, and where obtainable a statement of operations.

Illinois Society.

The following circular has been sent out from the Secretary's office to members of the Illinois society:

"In view of the fact that the provisions of the Illinois law regulating the profession of Public Accountant, are unknown to many business men; and that many members of the legal profession in Chicago and elsewhere have not had their attention called to the fact that the law in question has been in effect since July 1st, 1903:—the Directors of the Illinois Society of Certified Public Accountants have instructed their officers to publish an outline of the act under which Certified Public Accountants are authorized to so designate themselves in this State at present; and to supplement the same with a copy of a resolution recently adopted by the Illinois Society; which it has been considered advisable to publish in order that the public generally may understand the position clearly.

"SEC. 1. Certified Public Accountants must be citizens of the United States, or have duly declared their intention to become such; must be 21 years of age; of good moral character; possess an education equivalent to a high school course of four years, and shall have received from the University of Illinois a certificate to practice under regulations further provided. No other person shall assume the title Certified Public Accountant or use the abbreviation C. P. A., or any words or letters to indicate that he is a Certified Public Accountant.

"SEC. 2. The University of Illinois determines the qualifications of persons applying for the degree; makes rules for the examination of candidates and is authorized to appoint a board of three examiners; two of whom shall be skilled in the practice of accountancy and actively engaged therein in the State of Illinois, and the third shall be either an Accountant or an Attorney skilled in commercial law. Examinations shall take place not less frequently than once a year and shall cover questions in 'Theory of Accounts,' 'Practical Accounting,' 'Auditing' and 'Commercial Law' as affecting accountancy.

"SEC. 3. For one year after July 1st, 1903, the University was authorized to use its discretion in waiving examinations of such candidates as might be found to have had five years' successive and previous practice as Public Accountant and were otherwise qualified as provided in Sec. 1:—or in the case of such candidates as had passed an equivalent examination elsewhere and had had five years' previous practice.

"SEC. 4. Covered fees which the University was authorized to charge against all candidates for the C. P. A. degree; payment of examiners, etc.

"SEC. 5. Authorizes the University to revoke any certificate in cases of unprofessional conduct or other sufficient cause.

"SEC. 6. If any person shall represent himself to the public (*verbatim*) as having received a certificate as provided in this act, or shall assume to practice as a certified public accountant, or use the abbreviation C. P. A., or any similar words or letters to indicate that the person using the same is a certified public accountant, without having received such certificate as provided in this act, and having thereafter lost such certificate by re-

vocation as herein provided, shall continue to practice as a certified public accountant, he shall be deemed guilty of misdemeanor, and, upon conviction thereof, shall be fined a sum not exceeding two hundred dollars ($200) for each offense: PROVIDED, That nothing herein contained shall operate to prevent a certified public accountant who is the lawful holder of a certificate issued in compliance with the laws of another state, from practicing as such within this State, and styling himself a certified public accountant.

"The resolution adopted by the Illinois Society under date of October 6th, 1906, read as follows:—

> 'That the members of the Illinois Society of Certified Public Accountants record themselves to the effect that the C. P. A. degree 'is a personal one and should not be used by any firm unless each 'member thereof be duly registered as holding a C. P. A. certificate 'individually; and further that it is the opinion of the Illinois 'Society that no corporation is entitled to designate itself Certified 'Public Accountants at any time.'

"The Society has retained counsel to prosecute any violations of the Act, and will welcome and hold strictly confidential any information regarding the same.

By order of the Board of Directors,

Attest:
R. S. BUCHANAN,
Secretary.

EDWARD E. GORE,
President."

Minnesota Society of Public Accountants.

At the meeting of this society held in St. Paul in October last, the following officers and trustees were elected: president, Herbert M. Temple, St. Paul; vice-president, Fred. H. Wendell, Minneapolis; secretary, H. R. Hayden, Minneapolis; treasurer, N. B. Hinckley, St. Paul; trustee for five years, G. B. Green, Minneapolis. The society has marked out an aggressive campaign for the coming year and among other features will present a C. P. A. bill to the Minnesota Legislature early in January, 1907.

C. P. A. Examination, December 13, 1898.

PROBLEM NO. 2.

A., B., and C. agree to start in business with a capital of $400,000, of which A. is to furnish $200,000, B. $100,000, and C. $100,000. A. is to have ½ interest in the business, and B. and C. each ¼ interest, and interest at the rate of 5 per cent. per annum is to be paid on excess capital, if any. A. contributes $200,000, B. $90,000, and C. $80,000.

How would the capital accounts stand on the books after adjusting the interest account at the end of the year?

To successfully solve this problem one must have a definite idea of what the deed of copartnership contemplates as to the division of the 5 per cent. interest on capital. Where interest is to be allowed on the excess and charged on the deficiency of the capital of each partner beyond or under a certain fixed ratio, the interest should be calculated on each partner's account, and the sum of this interest is the total interest on the capital. The proportion of each partner may be thus ascertained. If the actual interest on any partner's account exceeds the amount brought out by this proportion, he should be credited with the difference; but if, on the other hand, the actual interest is less than brought out by the proportion, his account should be debited with the difference.

To illustrate:

A.'s Capital Account.

				1 year's interest at 5 per cent.	
			Jan. 1. Capital.....	$10,000	$200,000
			Profit and Loss	Interest	750

B.'s Capital Account.

				1 year's interest at 5 per cent.	
			Jan. 1. Capital.....	$4,500	90,000
Profit and Loss	Interest	$125.00			

C.'s Capital Account.

				1 year's interest at 5 per cent.	
			Jan. 1. Capital.....	$4,000	80,000
Profit and Loss	Interest	$625.00			

The interest on the capital of the firm is A., $10,000, B., $4,500, C., $4,000; total $18,500, of which A. is entitled to ½—$9,250, B. ¼—$4,625, C. $4,625.

LOSS AND GAIN APPROPRIATION ACCOUNT.

A.'s Capital Account for interest:			B., Capital Account for interest:		
Interest on his account for the year	$10,000		Proportion of $18,500 being ½ of total interest	$4,625	
Deduct proportion of $18,500 being ½ of total interest ..	9,250	$750	Deduct interest on his account for year.	4,500	$125
			C. Capital Account for interest:		
			Proportion of $18,500, being ½ of total interest.....	$4,625	
			Deduct interest on his account for year.	4,000	625
		$750			$750

This method holds good when the division of profits and the capital invested have the same ratio.

The result is the same as that of the regular method.

LOSS AND GAIN.

A. ½ of profits	$ 750	B.'s Capital Account:		
B. ¼ of profits	375	5% on $100,000	$5,000	
C. ¼ of profits	375	Deduct 5% on his account $90,000.	4,500	$500
		C.'s Capital Account:		
		5% on $100,000	$5,000	
		Deduct 5% on his account $80,000.	4,000	1,000
	$1,500			$1,500

W. H. DENNIS, C. P. A.

Firm Announcements.

Messrs. Edmonds & Bouton, certified public accountants of New York City, have admitted into partnership Mr. Garry Brown, C. P. A. (Maryland), and Mr. W. P. White of New York. The name of the firm will remain unchanged.

Messrs. Jones Cæsar Dickinson, Wilmot & Co., certified public accountants, and Price, Waterhouse & Co., chartered accountants, announce the opening of a branch house in the City of Mexico. Mr. H. W. Wilmot is now in Mexico in charge of the branch office.

Mr. Samuel D. Patterson, C. P. A., of New York City, has been appointed Professor of Principles and Practice of Accounts in the New York University School of Commerce, Accounts, and Finance. He will lecture on executors' accounts during the second term of the current school year.

The *Official Golf Record*, a weekly publication of New York City, has an interesting account, in its issue of November 9, of the golf tournament at Columbus of the American Association of Public Accountants' Golf Club. "The qualifying round of the competition," says the *Record*, "resulted in bringing together for the competition proper Duncan Mac Innes, of New York, Leon Fischer, of Chicago, Harvey S. Chase, of Boston, and E. E. Ganno, of Bound Brook, who proved to be all of the survivors. The Columbus Accountants' Society provided a very excellent lunch for the golfers and the large 'gallery' of ladies and gentlemen who had followed some of the matches during the forenoon; and this attraction, together with the difficulties encountered at some of the holes, doubtless resulted in narrowing the field for the final competition down to the four players mentioned. The result of the competition, which was concluded by an approaching and putting contest, under the supervision of Mr. Arthur Smith, the professional, was as follows:

"Harvey S. Chase, of Boston, the lowest gross score for the competition; E. E. Ganno, of New Jersey, the lowest gross score for one round; Leon Fischer, of Chicago and New York, was awarded the 'champeen's' prize for the lowest net score, and Duncan Mac Innes, of New York, won the approaching and putting competition.

"The next competition of the club will be held at St. Paul, Minn., and already quite a number of the members have signified their intention of participating."

The American Association of Public Accountants.

List of Officers, Trustees, Committees and Members.

on October 23, 1906.

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